

TECHNICAL APPENDICES TO THE CONSERVATION AND OPEN SPACE ELEMENT (1985 -2000)



volume VII

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I. PUBLIC CONCERN WITH NATURAL RESOURCES

Nationwide concern with the conservation of resources began in the early 1960's and peaked at the gas pump in 1975, with the energy crunch. Statewide interest in conservation intensified with the 1977 drought. Over the years, other statewide conservation concerns developed including: air pollution; loss of public access to rivers, streams and lakes; and an alarming increase in the number of wildlife species placed on the endangered list. All of these resource issues transcend local jurisdictional limits and even regional boundaries.

Within the Redding plan area, the indigenous natural resources are the Sacramento River, creeks, watersheds, minerals, wildlife and vegetation, good air and water quality, scenic vistas, soils and agriculture. Local concerns with each of these resources are detailed in the "Existing Conditions and Issues Report of the Redding Planning Area, 1980 - 2000." This report discusses the location of resources as well as significant issues.

Fifty years ago the Redding area had significant fisheries, productive farmlands, vast quantities of sand and gravel deposits and an abundance of wildlife. With urbanization, these resources among many others have been consumed in many instances without regard to reclamation and future needs.

Development that has occurred in recent years has had a significant and far-reaching impact on the area. For example, development has been precluding the mining of close-in gravel deposits that will be needed in the future. The subdivision of prime agricultural farm land into small parcels is reducing the revenue that this basic industry provides to the community. Also, fisheries and wildlife habitats have been affected by subdivisions, encroachment into flood plains and loss of gravel recruitment for spawning.

The remainder of this chapter discusses in more specific terms each natural resource within the plan area, concerns with resources, and existing programs to conserve resources.

A. SOIL

1. Soil Erosion

One of the key indicators of erosion is turbid river and stream flows that appear during the first winter rain. Erosion activity is usually the result of concentrated grading activity that leaves slopes scarified and land unseeded. When this occurs, the erosion of sediments results in clogged drainage systems, polluted waters and mud-laden sidewalks and roads. The economic cost of these impacts is difficult to assess. For example, the economic impact of sediment-laden fisheries cannot be measured.

According to a recent "Shasta County Erosion Study" prepared by CH2M Hill, the rate of soil erosion for developing sites is between 10 and 50 tons per acre per year, whereas the on-site erosion from undisturbed land is usually less than 3 tons per acre per year. This range indicates that uncontrolled construction sites could produce an

erosion increase at least three times greater than undisturbed sites. For purposes of comparison, 50 tons of sediment is equal to a volume of 40 feet by 40 feet by 1 foot deep of soil.

The "Shasta County Erosion Control Study" provides a great many erosion-controlled measures including erosion preventative policies. It is believed that this report should be evaluated in relation to revision of the City's grading ordinance and enhancement of wildlife and vegetation. A detailed description of soils within the plan area is provided in "Soil Survey of Shasta County" prepared by the U.S. Department of Agriculture. Also a map of soil erosion potential for the Redding area is included in the "Existing Conditions and Issues of the Redding General Plan."

2. Existing Erosion Preventive Programs

The City of Redding uses a combination of the ordinances and the General Plan to minimize the effects of erosion. For example, it is the City's policy to restrict cut and fill activities to slopes less than 20 percent. Also canyon areas with slopes exceeding 20 percent are generally dedicated as natural open-space corridors for public access, wildlife and watershed purposes. In addition, the City's Land-Use Element of the General Plan minimizes density in certain areas where the erosion potential is high such as along the Sacramento River.

The City's Grading Ordinance outlines protective measures by requiring a grading permit for any project which involves excavation in excess of 2 vertical feet and 25 cubic yards of material. Similar permit requirements are set forth for fills. Where a permit is required, the grading ordinance stipulates that all cut and fill slopes greater than three feet in height shall be planted according to certain specifications, including irrigation; and where erosion is likely to cause scouring due to concentrated storm flow, energy dissipater devices are required.

3. Public Concerns

Public concerns with erosion are as follows:

- a. Uncontrolled grading can cause excessive siltation, erosion and degrade water-quality.
- b. Property values can adversely be affected by scarification.
- c. Every year public funds are spent on removing erosion debris from public right of way (i.e. sidewalks and streets).
- d. Increased flooding caused by clogged drainage facilities.
- e. Wildlife habitat and fisheries can be adversely affected by excessive siltation and sedimentation.
- f. Loss of valuable topsoil.

B. CREEKS AND THE SACRAMENTO RIVER

Of all the resources that make-up Redding's environment, the Sacramento River and its fourteen tributary creeks (including riparian habitat) are the most scenic. These resources must also be viewed relative to their water quality and supply, sewage-treatment potential, wild-life habitats, and flood-control purposes. Issues that pertain to these streams are as follows:

1. Scenic Quality

a. Creeks

Although the subject of scenic quality is given a great deal more attention in the Community Appearance and Scenic Highway elements, it is mentioned here because of its interrelationship with flood control and water quality.

The fourteen creeks listed below and identified on Exhibit "B" project outward from the Sacramento River much like the branches of a tree. The Sacramento River bisects the City as it meanders through the plan area.

Creeks

Canyon Creek	Middle Creek
Gold Run Creek	Stillwater Creek*
Clear Creek	Olney Creek**
Churn Creek*	Sulphur Creek
Boulder Creek	Clover Creek
Salt Creek	Clough Creek
Buckeye Creek	Oregon Gulch Creek
Jenny Creek	Calaboose

* Natural year-round creek flow.

** Artificial year-round flow.

Of the fourteen creeks, only Churn Creek, Stillwater Creek and Jenny Creek have year-round flows. Much of the water in Jenny Creek is from the City's water treatment plant. Olney Creek is also year-round, but during the summer, when it normally would be dry, it is fed by irrigation spill water from the ACID Canal. The rest of the creeks are intermittent drainage courses.

The creeks with the most significant visual quality include portions of Sulphur Creek, Churn Creek, Stillwater Creek, Clear Creek and Olney Creek between Market Street and the River. All of these creeks provide significant riparian habitat, which should be protected not only for its beauty but its value to fish and wild-life as well.

b. National Wild and Scenic River Status

The scenic value of the Sacramento River is, of course, much more significant. On September 11, 1970, the Secretary of Interior and

the Secretary of Agriculture recommended that segments of the Sacramento River, including that portion through the plan area, be identified as potential additions to the National Wild and Scenic Rivers System. According to the Wild and Scenic Rivers Act of 1968, such a river must possess outstanding remarkable scenic and recreational, geologic, fish and wildlife, historic, cultural, or other similar values for the benefit and enjoyment of future generations. The U.S. Bureau of Outdoor Recreation is currently evaluating public input and studies to determine the feasibility of designating the portion of the Sacramento River between Keswick Dam and the City of Anderson as part of the National Wild and Scenic River System. This scenic status is carried further by the City's "Scenic Highway Element," which also designates the river as "scenic waterway." Both of these designations establish a policy of scenic protection, but neither one presently provides standards for implementation.

c. Existing Programs to Conserve Scenic Quality

It is the City's policy to provide as much public access to the river as possible. This by itself protects vistas of the river because it imposes a building setback usually beyond the 100-year flood-plain boundary. A good example of the application of this policy is the Lake Redding Estates Subdivision located upstream from Caldwell Park. This subdivision has one mile of river frontage, but between the lots and the water's edge is a 125-foot-wide strip of land which was dedicated for public access. The buffer strip is heavily vegetated and when the subdivision is fully developed, the buffer strip will provide a year-round visual screen against the subdivision.

The City also applies a 25- to 30-foot setback standard to some projects which encroach close to the edge of the river's bluffs located north of the Cypress Street bridge. Although the primary purpose is to provide sufficient soil-bearing depth for building foundations, it also maintains the majestic character of the river's "Red Bluffs."

Without height control, the setback standards would be meaningless. For this reason, the City's height standards for each zoning district are an important factor in minimizing the visual impact on the river. The permitted height for each zoning district is noted below.

TABLE 1
PERMITTED BUILDING HEIGHTS BY
ZONING DISTRICT ADJACENT TO RIVER

<u>District</u>	<u>Permitted Height</u>
R-1 Single Family Residential	30 feet
R-2 Duplex Family Residential	30 feet
R-3 Multiple Family Residential	30 feet
R-4 Multiple Family Residential	50 feet
RM Multiply Family Residential	30 feet
C-1 Neighborhood Commercial	30 feet
O Office	40 feet
C-2 Central Commercial	50 feet
C-3 Heavy Commercial, Light Industrial	50 feet
C-4 Core Commercial	50 feet
M-2 Industrial	50 feet
PD Planned Development	by approval of Planning Commission

Other visual quality preservation programs include:

- . Prohibition of development within the 25-year flood plain for intermittent creeks and 100-year flood plain for year-round waterways including the river.
- . On-going program to develop a linear park system along the banks of the River.
- . Dedication of archaeological sites on the banks of the river.
- . Encouraging cluster development to maintain visual corridor of the river from public right of way.

All of these programs, policies, and standards work together to preserve the riparian habitat of the river and its tributary creek which in turn buffers the visual impact of urban development.

2. Public Access

a. Access to the River, Creeks and Public Open Space

The provision for public access to the Sacramento River and its 16 tributary creeks and public open space has been a long-standing goal of the City as well as a liability concern. Types of Public access includes:

- a. Fishing, hiking, bicycling and equestrian purposes.
- b. Boat-launch sites.
- c. Visual access to significant vistas.

- d. Emergency-vehicle access for fire protection and water safety reasons.
- e. Vehicular access for mosquito-abatement purposes.
- f. Utility construction and maintenance easements for sewer, water and overhead electric lines.

The issue of public access to "public waterways" has become a regional concern to the extent that the State has passed legislation requiring local agencies to provide for public access as development occurs. Government Code Section 66478.5(a) states that: "No local agency shall approve either a tentative or a final map of any proposed subdivision to be fronted upon a public waterway, river or stream which does not provide for a dedication of a public easement along a portion of the bank of the river or stream bordering or lying within the proposed subdivision."

Of the 18 miles of the Sacramento River channel that winds its way through the plan area, approximately 9 miles is within the incorporated City. The river is a major visual asset and the backbone of the City's regional park system. Existing and planned recreation facilities, including boat launches and trails along the river, are discussed in the Recreation Element of the General Plan. In many areas, public access to the river is restricted by private ownership and hazardous physical features such as steep cliffs and fast currents with undertows. Within the plan area, the river has 36 miles of shoreline by counting both sides. Of this, 12.2 miles or 34 percent has dedicated public access and another .8 mile is considered inaccessible because of severe topography or fast currents (Refer to Exhibit "A").

A significant concern of the City has been the growing liability resulting from the acceptance of more and more dedicated open-space lands and easements adjoining subdivisions.

In almost every instance these lands consist of parcels that would be difficult to develop because of steep slopes that exceed 20 percent. They are classified by the Fire Marshal as extreme wildland fire hazards because of the steep slopes and highly combustible vegetation.

The issue of increased liability for fire protection becomes less significant when considered that the City is ultimately responsible for providing fire protection regardless of ownership.

It has been the City's policy to diminish its liability in other areas by not providing trails for public access. But this policy is a double-edged sword because without a graded trail the City's fire-fighting potential is lessened. This policy has also frustrated the Mosquito Abatement District because they can not easily spray mosquito-breeding catchment ponds along drainage ways.

Some of the arguments frequently used by residents and City Officials to discourage the construction of a trail system are that there would be increased potential for fires being started by trail users, there would be loss of privacy for those residents adjoining the open space, and there could be more noise and dust caused by unauthorized vehicles. The Police Department is also concerned with the inability to adequately patrol public trails in open-space areas.

All of these arguments are sound, but as the City urbanizes, they will become less reasonable because more people will use open space areas regardless of whether there are improved trails. In many of the canyon areas, narrow pedestrian trails are worn into the landscape by users who have made their own trails; but for fire protection and mosquito-abatement purposes, these trails are not functional because they are in the wrong location and too narrow and steep for emergency vehicles.

A recent amendment to the California Government Code has decreased public agency liabilities for trails to unimproved publically owned land. In 1979, the immunity provided by Government Code Section 831.4 was expanded to cover "dangerous conditions of any paved trail, walkway, path or sidewalk on an easement of way, which has been granted to a public entity to provide access to unimproved property." The immunity provisions presumes that cities must take reasonable steps to warn users of any dangerous conditions that may exist on the trails in question.

With this change in the Government Code, the City should consider amending its open-space policy to require that trails be provided as a condition of project approval on all subdivisions which have lands in excess of 20 percent grade regardless of whether or not they are proposed for dedication.

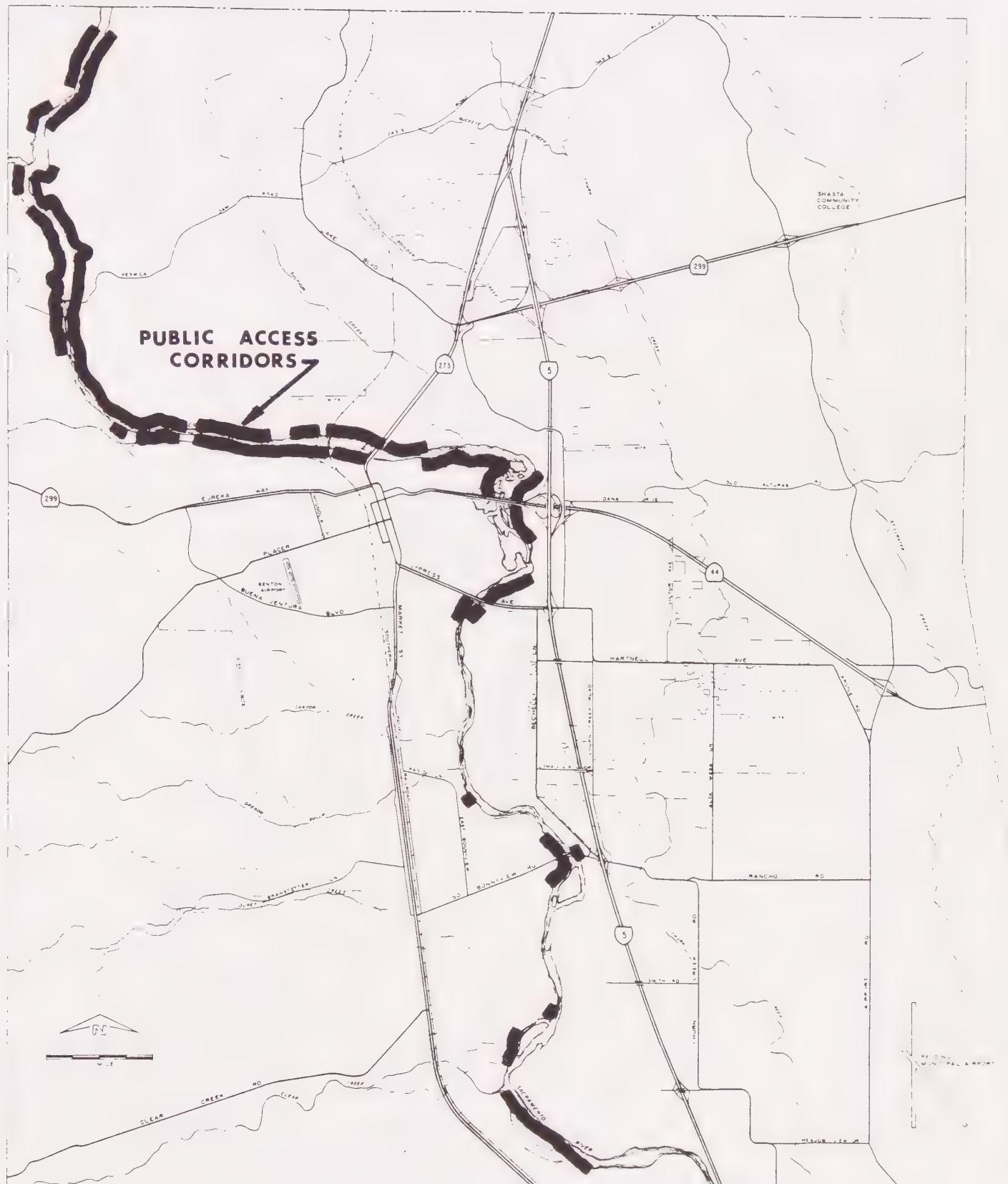
Once the trails are graded, the scarrings of the cross-cut slopes could be hydromulched to prevent erosion. This would also encourage revegetation. Drainage control could be a problem, but it should be remembered that the purpose of the trails is not to accommodate passenger vehicles but heavy emergency earth moving equipment that could be quickly brought in to clear an emergency firebreak.

b. Access to Ponds and Lakes

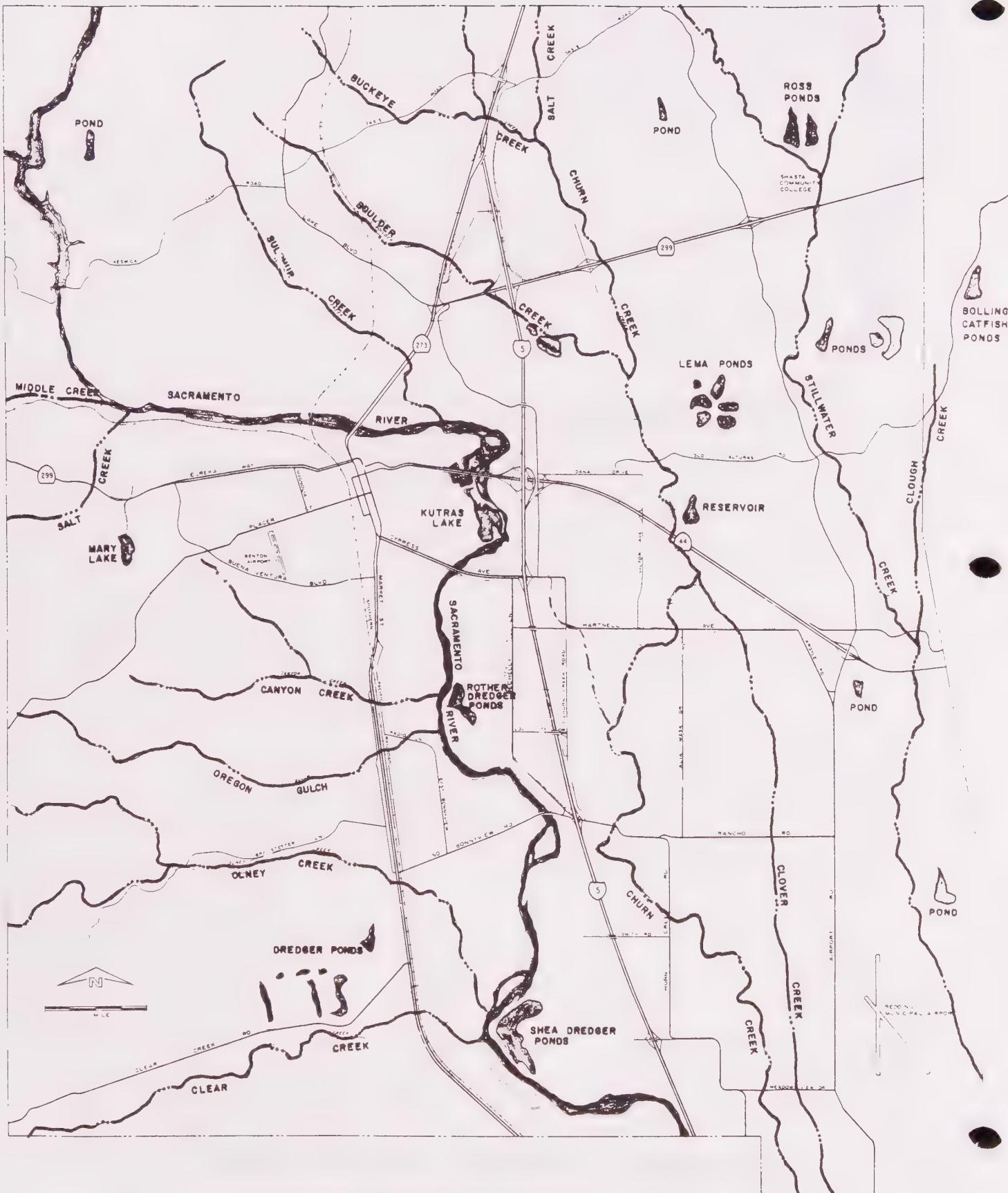
The plan area is also punctuated with several small ponds as noted on Exhibit "B." These include:

Bolinger Catfish Ranch (private)
Ross Ponds (private)
Mary Lake (public)
Kutras Lake (private)
Lema Ponds (private)
Dredger Tailing Ponds (private)

Rother Pond (private)
Shea Pond (private)
Unknown Pond (private) south
of Shasta College



**PUBLIC ACCESS CORRIDORS:
SACRAMENTO RIVER**



REDDING AREA CREEKS & PONDS

EXHIBIT B

Since all but one of these ponds are privately owned, the City has not developed any policy of conservation or protection. Perhaps the only notable private pond or lake for which development may eventually preclude public access in the future is Kutras Lake located off Park Marina Drive. This lake is currently used in the summer months by many residents for swimming and other recreational activities. The development of Mary Lake is addressed in the Recreation Element.

c. Existing Programs to Provide Public Access

The types of public-access needs are often at cross purposes with each other. For example, vehicular access and pedestrian access sometimes conflict. Also vehicular access for the Mosquito Abatement District on occasion encourages the unlawful use of trails by off-road vehicles and motorbikes.

The methods employed by the City to obtain public access have included fee-simple acquisition, fee-simple dedication, easement dedication and private-easement dedication to a homeowners association. Since 1964, the City has made use of all of these tools to provide river-front and creek access, and to preserve riparian habitat.

One of the goals of the 1970 General Plan was to develop a linear park theme with several access points to encourage pedestrian, bicycle and equestrian travel. This policy also coincides with the goals of the Department of Water Resources and the Bureau of Land Management. Both of these agencies are currently considering the development of a coordinated urban trail system with the City of Redding along the river from Diestlehurst Bridge to Shasta Dam.

Over the years, the City has assembled segments of the river corridor to complete the linear park theme. When enough frontage has been obtained, then several recreational uses may be developed. One possibility that has been seriously considered, since the adoption of the 1970 General Plan, is a horseback-riding and pedestrian-trail network utilizing the river bank and creek banks.

3. Flood Plain and Flooding

One of the purposes of the Conservation Element is the development and utilization of natural resources including water and its hydraulic force. The management of flood plains along creeks and the Sacramento River involves the conservation of riparian habitats to stabilize the banks, controlling erosion from tributary waterways, and the control of development in flood plains such that the dynamic forces of flood waters are not impeded.

According to a recent report entitled "Flood Insurance Study," by the Federal Emergency Management Agency (FEMA), the principal flood-prone waterways in the Redding area are the Sacramento River and Churn Creek. Secondary flood-plain areas are Olney Creek, Clear Creek, Little Churn Creek, and Clover Creek.

The risk of experiencing a major flood increases when periods greater than one year are considered. For example, the risk of having a flood, which equals or exceeds the 100-year flood (one percent chance of annual occurrence) in any 50-year period, is approximately 40 percent (4 in 10); and for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analysis reported here reflects flooding potentials based on conditions existing in the community at the time of completion of this study.

In order to provide a national standard without regional discrimination, the 100-year flood has been adopted by the Federal Emergency Management Agency (FEMA) as the base flood for purposes of flood-plain management measures. The 500-year flood is employed to indicate additional areas of flood risk in the community. The preliminary 1980 100-year flood-plain boundaries prepared by FEMA have been delineated for the Sacramento River and Churn Creek. Sometime in 1983, FEMA will conduct public hearings on the establishment of the 100-year flood plain and at the conclusion of the hearings, the City will be required to adopt a flood plain ordinance. Typical relationships between the floodway and the floodway fringe and their significance to flood-plain development are shown below.

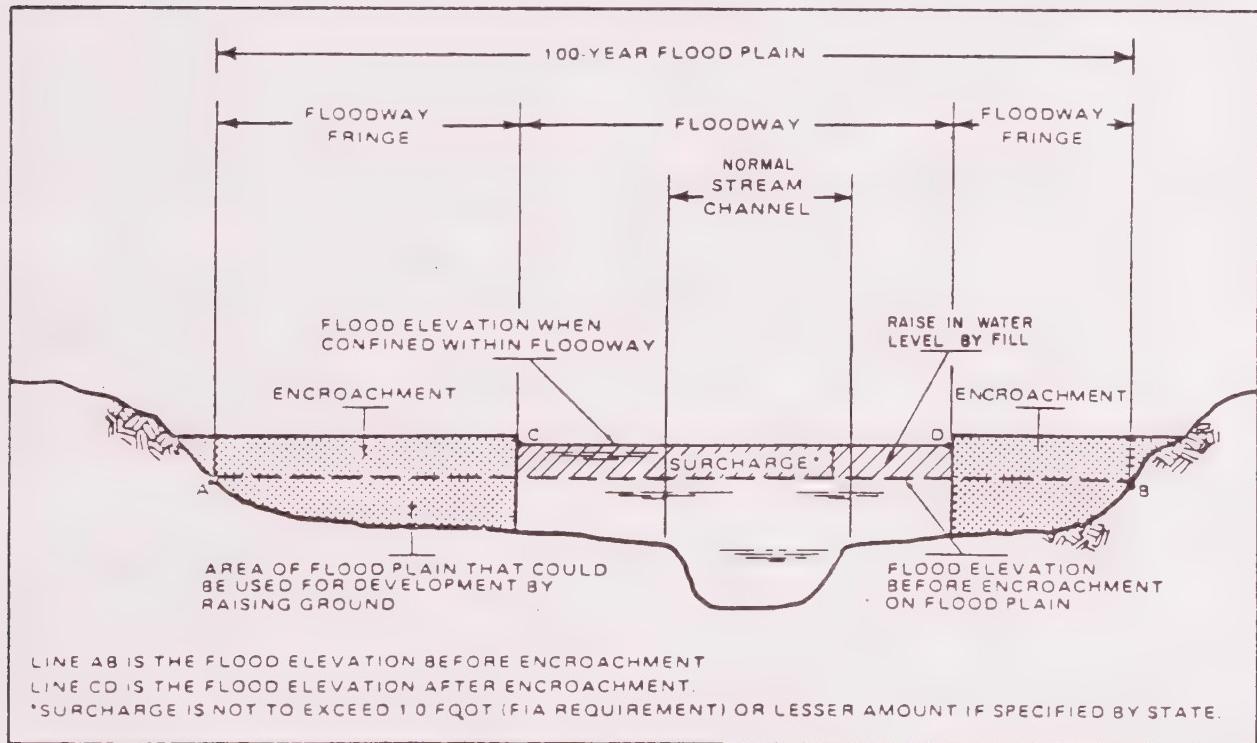


FIGURE 1

SOURCE: U.S. Department of Housing and Urban Development

a. Sacramento River

Intense rain storms over the Redding area and the Sacramento River basin upstream from Redding can occur anytime from September through April. Winter-rain flood runoff from Sacramento River above Shasta Dam is intensified when the ground is frozen and infiltration is minimal, or when rain or snow in higher elevations adds snow melt to rain flood runoff. Snow-melt flood runoff from the upper basin can be expected during April through June and could result in flood-control releases from Shasta Lake. Such releases, however, would be much smaller than those caused by winter rain floods.

Flooding of tributary streams is characterized by high peak flows. A significant snow pack rarely occurs in the tributary areas of these streams; thus snow-melt flooding originating downstream from Shasta Dam is not a hazard in the study area.

The two largest floods that have occurred since the construction of Shasta Dam were in 1970 and 1974. The peak discharges for these years were 78,900 cfs and 81,400 cfs, respectively. The limits of the 100-year flood plain for the Sacramento River are depicted in the "Existing Conditions and Issues Report of the Redding General Plan," and in the preliminary 1980 "Flood Insurance Study," prepared by The Federal Emergency Management Agency (FEMA).

b. Churn Creek

Among the several streams that pass through the City, Churn Creek has caused the most flooding problems. This stream traverses the eastern edge of the City through the Enterprise area. The most damaging flood of record was in December, 1964, when the flow reached 3,160 cfs at the U.S. Geological Survey gauge near Redding. Damage to rural residences, farmland, bridges, and roads was estimated at \$220,000. Most of this damage occurred along the lower end of the creek outside of the City, but it is not possible to divide the damages between the City and County with the data available. The limits of the 100-year flood plain for this creek are identified in the July 3, 1985, Flood Insurance Rate Map by the Federal Emergency Management Agency.

c. Uses Allowed Within the Flood Plain

Generally, it is the City's policy to prohibit development within the 100-year flood plain, but not necessarily all uses. The City encourages recreational uses such as parks, equestrian and pedestrian trails, boat ramps, outdoor theaters such as the one in Turtle Bay Regional Park and picnic areas.

d. Flood Loss Characteristics of Dwelling Unit Types

The selection of appropriate types of dwelling units for construction in areas exposed to flooding may significantly reduce potential flooding losses as compared with potential losses using other

dwelling types. Where the occupancy will be in a community that is generally exposed to flooding or in a substantially developed area in which it is not feasible or reasonable to forego building upon vacant sites, selection of the building type having the lowest flooding loss expectancy is appropriate. Based upon the "Federal Insurance Administrations' Depth-Damage Curves," the relative flooding-loss characteristics of common types of residential buildings are as follows:

TABLE 2
FLOOD LOSS CHARACTERISTICS BY DWELLING-UNIT TYPE
(Source: FEMA)

<u>Building Type</u>	<u>Ratio of Damage*</u>
Two-story dwelling without basement	1.0
Split-level dwelling	1.15
Two-story dwelling with basement	1.2
One-story dwelling without basement	1.5
One-story dwelling with basement	1.65
Mobilehome	2.3

*Base level is two-story dwelling without basement.

As shown on the table, the substitution of a building type with a lesser loss potential could reduce potential average annual flooding losses.

e. Existing Flood Protection Programs

The most significant structure providing flood protection for Redding is Shasta Dam on the Sacramento River. The dam controls the 10-, 50-, 100-year and intervening floods up to 79,000 cfs. Whiskeytown Dam on Clear Creek, completed by the U.S. Bureau of Reclamation in 1963, provides some flood protection to a small area in the southern end of the City. Keswick Dam, located 1.5 miles north of Redding, provides little or no flood protection for Redding as it works in tandem with Shasta Dam.

Nonstructural flood-control measures to decrease flood damage in the study area include the following programs:

- (1) The Sacramento River is part of the designated flood-way program of the State of California. This program gives the State Reclamation Board statutory authority to regulate uses of, and construction in, designated flood ways so as not to impair flood flows.

- (2) Shasta County has adopted flood-plain regulations as part of the Zoning Ordinance. These provide for flood-plain districts, designated flood-way districts, and restricted flood-zone districts along the Sacramento River.
- (3) The City has adopted a Flood Plain Zoning Ordinance which limits the degree of encroachment into the flood plain. It is also generally the City's policy to limit development within the 100-year flood plain through subdivision controls, use permit conditions and zoning districts.

4. Public Concerns

a. Scenic Quality Concerns

- (1) The preservation and maintenance of riparian vegetation of all waterways, especially the Sacramento River, is becoming more critical as these corridors are developed.
- (2) Modification of creek channels is becoming more frequent due to adjacent development and increased urban runoff. Without development standards, these modifications can cause downstream flooding and loss of riparian vegetation, fisheries and wildlife, and diminished visual quality.
- (3) Although portions of the Sacramento River are designated as having the potential for inclusion in the Wild and Scenic standards, which would officially classify the river as scenic, which would enhance its visual quality.

b. Public Access Concerns

- (1) As development occurs along creeks and river frontages, the potential for public access is gradually being diminished. The City has a program for acquisition or reservation of key parcels needed for access as the community continues to grow, but no funds have been budgeted.
- (2) Access and public use of Kutzus Lake may be lost due to more intensive development.
- (3) A coordinated urban-trail system along the river and creeks should be developed before adjoining properties are developed, which may preclude the development of the trail. The trail system could be administered by BLM, Department of Water Resources, Shasta County and the City of Redding.
- (4) A program for protection along dangerous access points to the river is needed.
- (5) There exist a conflict between the need for vehicular access to waterways by the Mosquito Abatement District and the need to restrict unauthorized off-road vehicles.

- (6) Conflicts exists between the need to provide public access, the need to maintain riparian habitat and private property rights.

c. Flood Plain and Flooding Concerns

- (1) Abnormal rainfall over a substantial period of time could cause water to flow uncontrolled over the gates of Shasta Dam, thereby causing extensive flooding along the Sacramento River.
- (2) An emergency evacuation plan for flooding and possible dam failure within the planning area has not been developed and there has only been limited coordination between the City and the County on this issue.
- (3) Some of the drainage facilities within creeks and drainage channels are not sized to specific storm frequencies relative to a defined risk factor (i.e., 10-, 20-, or 100-year storm frequency).
- (4) Some areas along creek corridors and along the river are being filled. This may cause surcharging and result in increased erosion and flooding.
- (5) In many residential areas along the river, permanent structures such as fences, accessory buildings, and recreation structures are located within the 100-year flood plain. During periods of flooding, these structures could increase the severity of flood damage by restricting flood flows; and should these structures be engulfed by flood waters, they could block flood waters underneath bridge abutments downstream.
- (6) As development occurs in tributary areas to creeks and the river, the capacity of some storm-water-retention basins is reduced which may increase flooding downstream.
- (7) In 1946, the U. S. Bureau of Reclamation placed warning signs along the river to indicate areas that might be flooded by releases from Shasta Dam. This policy has not been extended to include Redding.

C. WATER (Water Quality and Supply)

1. Water Quality

In the plan area, the quality of ground water and the Sacramento River is considered to be very good to excellent. There are some water-quality concerns, however, within certain localized areas of the community. These are noted in the "Existing Condition and Issues Report." In general, the primary concerns are that ground water is being gradually contaminated by septic-tank effluent, and surface water is made turbid as a by product of erosion.

Recent development activity in the tributary area for Sulpher Creek in the northwest portion of Redding has caused some real concern for the Bella Vista Water District in that the District's intake on the Sacramento River is just downstream from the outfall of Sulpher Creek. The creeks tributary area consist of 2000 acres; and as it is developed, more urban runoff (pesticides, oil and fertilizers) will find their way into the creek and perhaps into the district's water supply.

The City is attempting to deal with this problem by imposing building setbacks along the creek and maintaining landscape to filter out the pollutants.

The threat of leachate surface-water pollution from the City's landfill was a significant concern until the City installed a drainage-control system. In addition, as the landfill is expanded, clay sealant is applied to the face of the landfill to force leachates into the sewer system which then carries the pollutants to the sewer-treatment plant. After the landfill is abandoned, the leachate runoff should be carefully monitored to assure that the drainage system is working.

Another issue that may be significant is the loss of water-recharge-capacity areas of aquifers due to development. Aquifers are geographic areas where the basin ground water extends to the surface and permits a filtering of surface water to the basin water. This process is called recharging. If these areas are covered with roads, driveways, parking areas and buildings, then recharging is impeded and ground-water supply is lessened.

The only known recharge area is in the vicinity of Redding Municipal Airport. The Department of Water Resources has stated that there are others in the Redding area, but their boundaries are unknown.

A significant concern of the State Department of Fish and Game is the heavy metal contamination of the Sacramento River from Spring Creek, which occurs during most years. At times, concentrations of copper, cadmium, and zinc exceed the limits considered safe for fish. Cadmium levels at times may also approach the safe limit for drinking water. Recent studies have shown that copper and cadmium concentrations in fish tissues from fish collected within the Redding City limits are the highest in the State.

2. Water Supply

The drought years of 1976 and 1977 hit California hard, but not as much in the northern part of the State where ground water and surface supplies are more abundant. Still, Redding residents, for the first time in 40 years since the last drought, became keenly aware of the need to conserve water. Watershed areas around Redding were critically short of moisture, thus creating a potential wildland fire hazard. In some areas, like Pine Grove in north Redding, residents had to transport water to their homes by truck. These incidences were confined to residences in Argyle Estates and the Quartz Hill Road area, which are now connected to a public water-supply system.

TABLE 3
ALLOCATION OF CVP WATER IN SHASTA COUNTY

<u>Contracting Entity</u>	Water Allocation (AF)		
	<u>Base Supply</u> ¹	<u>Project Water</u> ²	<u>Total</u>
Anderson-Cottonwood I. D.	165,000	10,010	175,000
Bella Vista W. D.	0	24,000	24,000
Clear Creek C.S.D.	0	15,300	15,300
Daniell (Private Party)	13	7	20
Keswick C.S.D.	0	500	500
Mountain Gate C.S.D.	0	350	350
Centerville C.S.D.	0	1,560	1,560
City of Redding	17,850	3,150	21,000
City of Redding (Buckeye Area)	0	6,140	6,140
Riverview Golf Course (Private)	255	25	280
Shasta C.S.D.	0	1,000	1,000
Shasta Co. Water Agency	0	5,000	5,000
Shasta Dam Area P.U.D.	0	3,225±	3,225
Summit City P.U.D. (Now S.D.A.P.U.D.)	0	1,169±	1,169
Tharalson/Michiels (Private Party)	70	135	205
U.S. Forest Service (Centimudi Boat Ramp)	0	10	10
TOTALS	183,188	171,571	254,754

¹Base supply is a local water right which existed prior to construction of the CVP and which is protected in CVP contracts. There is no charge for this water.

²Project water is water made available as a result of the CVP. This water is purchased from the Bureau of Reclamation.

Source: Draft Shasta County General Plan, Sedway-Cooke.

The possibility of another drought condition has spurred local and statewide concern for conserving water. One of the major concerns facing the whole of Shasta County is the lack of a single agency to administer the water resources of the County. Table 3 itemizes the water allocations presently available to each agency and points out that some agencies have more than they can utilize while others will fall short of future demand.

The lack of a coordinating water agency coupled with the State's proposal to transport more water south, via the proposed Peripheral Canal, makes it obvious that all County agencies need to organize to protect the common interest of the residents of the County.

This same view is also shared by several Shasta County officials. According to the County's draft General Plan, the major advantage of having a county-wide water agency is that land-use planning in conjunction with known water-supplies could be coordinated with resulting cost efficiencies in the provision of water service and other facilities. Other advantages include enabling the water agency, through its contract with the Bureau of Reclamation, to speak with a single voice in dealing with Federal and State officials in water matters. This voice would be especially valuable in enabling all local agencies to guarantee the long-term water needs of their customers.

A single-coordinating water agency could also be instrumental in discouraging urban sprawl and could encourage the adoption of uniform water-utility standards for fire flow, line size and water pressure. It could also encourage the intertying of water lines to increase fire flow and reduce the inconvenience to customers caused by water-line breakage and maintenance.

3. Existing Water Supply and Water Quality Programs

The City is vigorously pursuing a program to increase its water supply. It was originally believed that the existing water-treatment plant would have to be expanded by 1986, but this time limit has been extended several years due to the scheduled construction of several wells in the Enterprise area. These wells will add approximately 6,000 acre feet to the City's water supply.

Another recent program the City is encouraging is to allow water districts such as Centerville and Bella Vista Community Service districts to continue to serve areas that have annexed to the City. This reduces water-supply demand and extends the life of the water-treatment plant.

In terms of improving the water quality of the plan area, the City has an adopted Sewer-Discharge Ordinance. The intent of the ordinance is to improve the treated discharge from the sewer-treatment plant into the Sacramento River. Also, the City's Grading and Subdivision Ordinances has in effect reduced the amount of sediment run-off caused by development.

4. Public Concerns with Water Quality and Supply

- a. Contamination of ground water by septic-tank effluent is a serious health hazard.
- b. Turbid river water caused by erosion and land-clearing activities.
- c. Potential loss of ground-water recharging areas due to development.
- d. A water-quality-improvement district may be needed for the Sulpher Creek tributary area.
- e. Detention ponds are needed in some large development projects, but erosion-development standards have not been formulated.
- f. Agricultural-pesticides concentration near the Sacramento River and tributary creeks.
- g. Heavy metal contamination from spring creeks at times exceed the safe limits for fish.
- i. Waste-water discharge from abandoned mines.
- j. Unregulated grading activity causing erosion and turbid water.
- k. Gravel quarry and dredging activities.
- l. Urban contaminants from asphalt and other impervious surfaces.

D. FISH, WILDLIFE, AND VEGETATION

Many of the residents of Redding depend on or utilize the natural resources and associated wildlife found in the plan area either directly by sport fishing, boating and other recreational activities, or indirectly as a spinoff of tourism, real-estate values and attraction of industry.

Redding is unique in having a river of high fishery value flowing through it. The Sacramento River supports an abundant population of rainbow and brown trout within the City limits. The trout are large and fishing for them is a popular pastime for many City residents. In fact, many retired people living in the City moved to this location to take advantage of the excellent fishing in the Sacramento River.

Four distinct species of chinook salmon spawn in the Sacramento River within the City limits. The fall run is present from September to December, the late fall run from December to March the winter run from February to July, and the spring run from April to October. Adult salmon can be observed jumping at the A.C.I.D. dam and is considered to be a City attraction to both residents and tourists. Spawning salmon can be observed on shallow riffles in the area of the Civic Auditorium particularly during the fall when the flows are the lowest. This is an attraction to many people and is an educational experience for some school children who attend school field trips to observe this phenomenon.

The extent of sensitive-habitat areas within the plan area has been partially mapped with the assistance of the California Department of Fish and Game. A detailed description of 14 sensitive areas is provided in the "1980 Existing Conditions and Issues Report of the Redding General Plan." That report also discusses significant anadromous fish-spawning areas, bird-nesting sites, osprey-foraging corridors and other micro-habitats. Within the plan area, there are two species on the rare and endangered species list for California. The bald eagle (endangered) and the yellow-billed cuckoo (rare). It should be mentioned that although the endangered peregrine falcon and bald eagle are not known to nest within the area, they do forage along the Sacramento River and its tributaries.

It is difficult to determine how much habitat is required to maintain the present status of wildlife in the plan area or even an acceptable percentage of it. What is known is that wildlife once displaced rarely moves into alternative habitat locations. More commonly, that percentage of wildlife displaced is permanently lost. Table 5 illustrates the significance of parcel size required to support certain species of wildlife. The Redding General Plan makes no provision for the 20-25 acre parcel size so it can be assumed that wildlife in this acreage category will eventually giveaway to urbanization within the plan area.

With the aid of infrared photography, the California Department of Fish and Game has mapped the five major wildlife habitat areas for Redding. These are identified on Map Exhibit "F" at the end of this report. A clearer understanding of the relationship of wildlife habitat areas to parcel size for the Redding area may be gained by referencing the wildlife habitat study provided in Appendix "D" and Map Exhibit "F." A summary of the study, prepared by the Department of Fish and Game, is provided in the following table:

TABLE 4
RELATIONSHIP OF HABITAT TO PARCEL SIZE

Habitat Type	No. of Species Affected by Lack of Parcels in the 20-80 acre size
Oak Woodland (Digger Pine with under brush)	26 bird species 10 mammal species
Riparian Vegetation Adjacent to year-round stream.	129 bird species 14 mammal species
Chapparral	12 bird species 6 mammal species
Grassland (no wood vegetation present)	11 birds 2 mammal species
Oak Grassland (live oak, blue oak or valley oak in association with grassland)	22 birds 3 mammal species

Table 4 illustrates how urbanization of the entire plan area will cause a reduction of bird and mammal species normally found on contiguous parcels consisting of 20-80 acres. This is not to say that none of these species will ever inhabit parcels of less than twenty acres, but only that the probability of this occurrence will change from "High" to "Moderate and Low."

There are some positive impacts of urbanization on wildlife. Fish and Game officials noted that some migratory bird species such as house finch, robins, brewers, blackbirds and hummingbirds are enhanced by urbanization.

Related to wildlife maintenance is the loss of significant riparian habitat along the Sacramento River and creeks. Through the plan area, much of the river is heavily vegetated. To the layman, it appears to be undisturbed and ideally suited for wildlife, but the amount of vegetation is usually limited to the 100-year flood plain. This is insufficient land area to support most predator wildlife species and still provide adequate ground cover for nesting sites.

TABLE 5
PARCEL SIZE NEEDED TO SUPPORT SIGNIFICANT
WILDLIFE SPECIES

(Source: Dept. of Fish and Game, Redding, California)

SPECIES	1 Acre Parcel	2 Acre Parcel	5 Acre Parcel	10 Acre Parcel	20-25 Acre Parcel
WILDLIFE				Digger and grey ground squirrel, titmice, skunks, rabbits, raccoons, and opossum	Digger and grey ground squirrel, titmice, skunks, rabbits, raccoons, opossum, bobcat, ringtail cat, coyote, resident deer bear
BIRDS	Songbirds	Quail, ground nesting birds, Jays, Flicker, Lewis Woodpecker, Kistrel, Juncos	Juncos, Flickers, Kistrel, Lewis Woodpecker, Downy Woodpecker, Red Tailed Kistrel, Cooper and Screech Owl, ground nesting birds, Quail	Songbirds, quail, ground nesting, Jays, Hawks and Owls, Flicker, Lewis Woodpecker, Kistrel, Juncos, Downy Woodpecker, Red Tailed Kistrel, Cooper and Screech Owl, ground nesting birds	Songbirds, quail, ground nesting birds, Jays, Flicker, Lewis Woodpecker, Kistrel, Juncos, Downy Woodpecker, Red Tailed Kistrel, Cooper and Screech Owl, ground nesting birds, hawks and owls.

* Assumes (1) that all parcels abut each other to form a greenbelt corridor with vegetative undergrowth and some grazing area; (2) large parcels are not fenced; (3) open space formed by large parcels is not irrigated or farmed.

**Includes parcels that form open space habitat corridors of riparian, woodlands and fields.

Riparian zones are very sensitive to even a modest alteration. Because of the distinct vegetative community and the structure of riparian zones, they must also be considered fragile. Below is a summary of why riparian zones are important:

Value of Riparian Habitat

- The presence of water provides all or some needs of wildlife habitat.
- The greater availability of water to plants, frequently in combination with deeper soils, increases plant biomass production.
- The microclimate of riparian zones is different from that of the surrounding habitats because of increased humidity, a higher rate of transpiration, more shade, and increased air movement.
- Riparian zones along intermittent and permanent streams and the Sacramento River provide migration routes for wildlife such as birds, bats, and deer. Migratory deer frequently use such areas as travel corridors between high elevation summer ranges and low elevation winter ranges.
- Riparian zones, particularly along the river and streams, may serve as habitat connectors. Wildlife may use such riparian zones for cover while traveling across otherwise unvegetated areas. Some species, especially small mammals and birds, may use such routes in dispersal from their original habitats. This may be caused by population pressure or by shortages of food, water, or cover.

1. Vegetation

Vegetation is an integral part of the community's appearance, and its retention should be encouraged. Future development should minimize the removal of this vital natural resource, and plantings in areas where development has already occurred, revegetation should be encouraged. Vegetation helps maintain the quality of the environment by cleaning and filtering the air, reducing noise, separating uses, increasing water quality, preventing soil erosion, and providing habitat for wildlife.

Vegetation patterns in the area vary with topography, available water, and soil characteristics. Along the Sacramento River and its tributaries, a riparian habitat exists in response to the available moisture. Riparian lands are extremely important for the food and cover they provide for wildlife. Following is a partial list of common natural vegetation found in the plan area:

<u>Common Name</u>	<u>Scientific Name</u>
Buck brush	<i>Ceanothus cuneatus</i>
Foothill coffee berry	<i>Rhamnus californica</i> var. <i>tomentella</i>

Poison oak	<i>Rhus diversiloba</i>
Toyon	<i>Heteromeles arbutifolia</i>
Yerba santa	<i>Eriodictyon californicum</i>
Common manzanita	<i>Arctostaphylos manzanita</i>
White leaf manzanita	<i>Arctostaphylos viscida</i>
California buckeye	<i>Aesculus californica</i>
Blue Oak	<i>Quercus douglasii</i>
California black oak	<i>Quercus kelloggii</i>
Interior live oak	<i>Quercus wislizenii</i>
Valley oak	<i>Quercus lobata</i>
Canyon Live oak	<i>Quercus Chrysolepis</i>
Fremont cottonwood	<i>Populus fremontii</i>
Willow	<i>Salix (species)</i>
California sycamore	<i>Platanus racemosa</i>
Digger pine	<i>Pinus sabiniana</i>
Knobcone pine	<i>Pinus attenuata</i>
Ponderosa pine	<i>Pinus ponderosa</i>

Along with the above, there are many varieties of flowers, grasses, and other vegetation in the area. The Soil Conservation Service and the Forest Service have done extensive vegetation mapping of the region.

Engangered plants within the plan area include the Rattleweed (*Astragalas Pauperculus*), Silky Cryptantha (*Cryptantha Crinita Greene*), slender Orcutt Grass (*Orcuttia tenuis*) and Arnica Venosa. The location and graphic description of each of these plant species is shown on pages 110 and 111.

Natural vegetation of the area has an economic advantage over the introduced species in the sense that it can survive without help from man if left alone. But with urbanization, it is not possible to maintain certain species of vegetation; for example, the common manzanita is gradually being eliminated because it is highly combustible, sensitive to overwatering and is not an aesthetically pleasing vegetation to some residents.

2. Real Estate Values of Wildlife and Vegetation

Most residents prefer a community well endowed with wildlife amenities as evidenced by the flight from urban areas to suburban area with more open space. This is sufficient incentive for integrating wildlife and open space into the planning process. Planners and developers also should be aware that wildlife amenities can increase property values. Higher prices can be charged for new housing developments that are well integrated into a liberal open-space system. The increased values are related directly to the open space and natural setting and indirectly

to the wildlife amenities afforded from this open space. A development that allows for wildlife also provides additional economic returns to the developer and the City through increased property values.

3. Educational Values of Wildlife and Vegetation

Wildlife within and adjacent to urbanized areas allows recreational and scientific pursuits and provides for the enhancement of educational programs. One of the benefits associated with wildlife and its supporting habitat is the potential influence on children. Evidence indicates that interaction with the natural environment enhances physical development and intellectual capabilities.

4. Tourism and Wildlife

In a recent survey of large companies by representatives of the League of California Cities, it was discovered that one of the main locational criteria of "foot loose" companies is the attractive living conditions of the community. According to the survey, "The key to attracting industry seems to be whether or not the Community satisfies the living conditions desired by the chief executive of the company." (Source: Kay Reynolds, Deputy Director, State Office of Local Economic Development, Sacramento.) This comment adds to the importance of maintaining a harmonious environment for wildlife, vegetation, people and industry. In more specific terms, tourism in Redding is big business, for every tourist that visited the Redding area in 1982, approximately \$87.50 was spent. This fact becomes significant when you consider that Redding is becoming a major convention City on the west coast, mainly through an intensive selling program by the Redding Tourist Bureau. The entire community benefits from convention and visitor dollars spent in the County either directly from motels, restaurants, gas stations, beauty salons, retail stores, grocery stores, etc. or indirectly by lower unemployment, more spendable income, etc.).

To determine the dollar-value contribution of wildlife to tourism within the plan area is impossible; but based on a recent study by the Redding office of the California Department of Fish and Game, the magnitude of the contribution must be very high. According to CDFG officials, each King Salmon caught in local fisheries has a value of \$237.00. This includes the cost of fishing tackle, food and lodging, license, clothing, boat and equipment and the cost of each man day it takes to catch one salmon. In 1980, it was estimated to take ten angler days to catch one salmon.

To put it in a different perspective, in 1980, the average hunter in Shasta County spent 40 dollars per man hunting day and the average sports fisherman spent 35-45 dollars per angler day. Although hunting and fishing within the City's plan area can not compete with the wildlife assets of the County, it is reasonable to assume that the loss of wildlife and vegetation to urbanization could have an adverse effect on the habitats of the outer fringes. Since Redding is the front door to the recreational areas of Northern California, it is desirable that the City provide a welcome mat that reflects the recreational and wildlife attributes of the area as well as place of employment.

5. Existing Wildlife and Vegetation Conservation Programs

Within the Redding area, there are very few programs aimed at specifically protecting wildlife. The City's open-space and flood-plain policies do provide some protection; for example, development and grading are generally excluded from slopes with 20 percent grades. The same restriction applies to the 100-year-flood-plain corridors along some creeks and the Sacramento River. Other City programs include the following:

- a. The City has adopted an ordinance which prohibits motor vehicles in unpaved areas owned by the City, the intent being that certain designated public lands be protected from damage to terrain and wildlife.
- b. The City has adopted a bird-sanctuary ordinance specifically aimed at protecting wildlife in Turtle Bay Regional Park.
- c. The City's Grading Ordinance provides some protection to the extent that massive indiscriminant grading is prohibited. Also, when environmental assessments and impact reports are required, the City evaluates the impact on wildlife and vegetation; however, so little is known about the needs of habitat areas that appropriate mitigation measures are often not incorporated into project design.
- d. The City's Planned Development Ordinance and Cluster Subdivision Ordinance is useful in consolidating development to protect wildlife habitat areas.
- e. The Department of Fish and Game is working with Shasta Mosquito Abatement District to reduce mosquito breeding areas while preserving, and where possible, enhancing wildlife habitat.
- f. The Department of Fish and Game through the 1601-06 agreement process protects the stream bank, stream bed and stream channel environments within the planning area. Anyone proposing to alter any of these areas must obtain an agreement from the Department as per the Fish and Game Code.

6. Public Concerns

- a. Little is known about the relative importance of the wildlife habitat areas of Redding; thus, the consideration of the significance of one habitat area over another has not been a factor in land-use decisions.
- b. Many wildlife corridors along the Sacramento River have been blocked by road and development projects.
- c. A greater understanding of the economic importance of preserving wildlife relative to real-estate values, tourism and cultural values needs to be developed.

- d. The City does not have a comprehensive program for the identification and preservation of significant wildlife areas.
- e. Salmon spawning areas in the river are gradually being lost because of creek modification, loss of gravel recruitment and turbid water caused by erosion and silting.
- f. Significant wildlife species (e.g. deer, coyote, and bobcat) within the plan area will eventually be displaced due to gradually diminishing parcel sizes in the plan area.

E. MINERALS

1. Inventory of Minerals

Mineral deposits within the planning area primarily consist of sand and gravel deposits. The northeast part of the County has some coal deposits and the area around the Municipal Airport has gas-bearing strata. The west part of the planning area has limited deposits of copper, gold and tungsten.

An inventory and map of mineral resources of the Redding area is provided on the following page.

2. Sand and Gravel Deposits

Major sand and gravel deposits exist along the north side of Clear Creek Road, west of the ACID canal and along the east bank of the Sacramento River, opposite the mouth of Clear Creek. Recognizing that these and possibly other deposits are valuable resources for the ongoing vitality of the planning area, they should be protected until they can be utilized.

Direct protection is the prohibition of any development within the resource areas. Land uses permitted within these areas should be limited to the extractive/mining activity and directly related to support functions such as equipment maintenance and storage, and underground fuel storage. This is not to be construed as allowing similar heavy-commercial or light-industrial uses to develop or to permit a proliferation of individual businesses functioning in support of the primary extractive operations. The object is to preserve the resource in its natural state for progressive, efficient mining and subsequent reclamation.

Indirect protection involves land-use compatibility on lands which are adjacent to areas classified as Extractive Industry. Certain residential uses should be discouraged near lands which are being mined or are reserved for future mining. Objectionable characteristics associated with mineral extraction such as noise, vibration, air pollution, dust, unsightly appearance, heavy equipment traffic, and general health and safety hazards are clearly incompatible with moderate- to high-density-residential land use.



LEGEND

- X** GOLD MINING AREAS (LODE AND PLACER)
- Oval** COPPER AND GOLD BEARING DEPOSITS
- Hatched** GRAVEL
- Large Stippled** GAS BEARING STRATA

Land-use classifications, which are most compatible adjacent to the two existing extractive industry areas, are Agriculture, Greenway/Open Space, Urban Reserve, and Semirural to Low-Density Residential.

Commercial and Industrial classifications may be inappropriate in these areas since the long-term land use is anticipated to be residential in nature. Reclamation plans associated with some of the existing operations indicate that ultimate development will be residential.

Progressive reclamation should be encouraged as the sand and gravel resources are extracted. Land should be left in a state that is suitable for future urban development. This can be achieved through reclamation plans as a part of the conditional use permit process.

3. Existing Mineral Management Programs

Since the City has no gravel or mineral extraction projects within the City limits, it has not developed any programs for conservation or management of these resources. The Redding General Plan identifies areas that have significant deposits of gravel and rock, which could be annexed to the City. The Plan also protects these areas from urban encroachment.

In addition, the State Resource Agency, Department of Conservation, requires that lead agencies are responsible for implementing the State Surface and Mining Reclamation Act. This Act obligates the City to require a reclamation plan based upon an adopted ordinance regulating gravel-extraction operations.

4. Public Concerns

There are a number of objectionable characteristics that typically accompany the extraction, processing, and transportation of sand and gravel products, and minerals in general. These include noise, vibration, air pollution, dust, traffic slow downs, and unattractive appearance of sites. The loss of gravel recruitment along tributary creeks to major fisheries is also a significant concern. There are also the health and safety hazards that accompany heavy earth-moving equipment, settling ponds, pits, and steep hillside truck movements. Rehabilitation or reclamation of depleted sites is another major problem of the sand and gravel industry.

A concern of the Mosquito Abatement District is increased mosquito breeding caused by the creation of shallow borrow pit areas of gravel extraction activities. Reclamation of these sites should insure the filling in, draining or enlarging of ponded areas to deter mosquito breeding.

In 1975, the State legislature enacted the Surface Mining and Reclamation Act to insure that minerals are available when needed. Counties and Cities containing areas classified as "MRZ-2" Mineral

Resource Zone 2 must amend their General Plans to include policies for managing them. These requirements are amplified in Title 14, California Administrative Code, Chapter 8, Subchapter 1, Article II. The "MRZ-2" zone is an area where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exist. Although the State has not made any official "MRZ-2" designations for northern California, it is likely that this will occur within a few years.

Based on current per-capital consumption and anticipated trends, the total estimated supply of sand and gravel resource exceeds the projected demand through the year 2000. This estimate does not consider the raising of Shasta Dam, which could significantly reduce this resource. There is also no guarantee that areas now relied on for future supply will be available for mining. In establishing policies for exhaustible resources, there is an obligation to consider the needs of future generations beyond any cut-off date. At the present, there is not a City-zoning classification specifically designed to protect present or future construction material resources.

In general, public concerns with mineral conservation may be summarized as:

- a. The gravel-extraction needs for the plan area to the year 2000 have not been determined nor has a program been developed to ensure that the needs can be met.
- b. The City has not adopted a mineral-extraction ordinance setting forth minimum standards on behalf of gravel-extraction operators and nearby residents.
- c. Gravel extraction leaves borrow pits that become mosquito-breeding areas.

F. AGRICULTURE

1. Significance of Agriculture

Prior to 1950, agricultural uses within the plan area were extensive. Even today, according to the draft Shasta County General Plan, agriculture accounts for a major segment of the County's economic base. In 1980, the total market value of farm products was 53 million dollars. Of the 400,000 acres currently being put to agricultural uses, only about 4,000 acres are within the plan area. Of this amount, 3,000 acres are located in the Churn Creek Bottom area.

One of the major concerns with the loss of agricultural lands to urbanization is that it forever closes the door to local self-sufficiency in food production. This is important to note since the County, theoretically, could be self-sufficient based on current levels of production. As pointed out in the draft Shasta County General Plan, during 1981 Shasta County's agricultural industry produced:

- a. Enough milk to provide each resident one cup of milk per day.
- b. Enough beef for each resident to have 107 pounds per year.
- c. Enough wheat for each resident to have two slices of bread per day.
- d. Enough honey to supply each resident with three pounds per year.

Within the plan area there are three basic agricultural needs to be concerned with. These are: (1) the raising of livestock near densely populated neighborhoods; (2) the raising of small crops on hobby farms; and (3) intensive agricultural uses requiring large amounts of land. Each of these concerns is discussed on the following pages.

2. Small Livestock Farms

The difference between maintaining livestock on small hobby farms and crop production (limited and intensive) is that livestock production does not require prime agriculture soil. This allows livestock hobby farming to occur almost anywhere the community wishes to permit it. The issue of raising livestock within an urban area has been adequately dealt with by the recent adoption of a Special "A" Agricultural Combining District. The ordinance was initiated in response to concerns of hobby farmers who have annexed or are considering annexing to the City. Historically, the volume of large-animal-permit applications has been low, not exceeding two per year. They generally have been granted only when neighbors support the request. Controversy has typically been limited to areas where a large lot (one acre) is close in proximity to a higher density neighborhood. The adopted Agricultural District "A" addresses this issue and sets forth standards for parcel-size and use-permit requirements. It also provides standards for the treatment of livestock. It must be emphasized that the "A" District is designed for combining with "R-1," Single-Family Resident Districts. It is not a zoning district for intensive agricultural uses but more a ranchette-type district for non-commercial farming, hobby farming and 4-H projects. Examples of areas for "A" zoning are Redding Ranchettes and Western Ranches.

3. Small Crop Farms

Part-time farming or hobby farming is a significant land-use trend, particularly on the fringes of the planning area. The economic contribution of small-crop agriculture to the plan area is limited, but it is believed that the agrarian lifestyle of small hobby farms in an urban area is far more attractive to residents than the economic gains of intensive agriculture. The characteristics of the hobby farmer are important lifestyle qualities that should be accommodated. In general, these qualities are outlined from the following excerpt from the draft Shasta County General Plan:

Small Crop Farmers not only produce their share of low-cost nutritious foods, but also unexpected human benefits. According to an article published in the "Journal of the American Planning Association, July 1979," C. W. Thompson, medical

director of a senior citizens center in Houston, reported that many of the folks at the center were lonely and felt unneeded. Through the Cooperative Extension Urban Gardening Program, they became interested in gardening and soon were planting seeds, weeding, and enjoying the fruits of their labors. "It helped lower their blood pressure--some patients are taking less medication, are more relaxed, and feel they are needed. They are eating better and spending less money on food."

4. Intensive Agricultural Uses

This category of farming includes large lots for crop production on prime soils or large lots for grazing of livestock. Prime farmland in the plan area is defined by the U.S. Department of Agriculture Soil Conservation Service as "land best suited for producing food, feed, forage, fiber, and oilseed crops and also is available for these uses (the land could be crop land, pasture land, range land, forest land, or other land, but not developed urban land). It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops economically when treated and managed, including water management, according to modern farming methods."

In the Redding area, soils in Class I and II are considered potentially prime farmlands. Some soils in Class III can also be classified as prime farmland if they meet all the criteria for the classification. Criteria includes specific amounts of available water, appropriate soil temperature and pH measurements, adequate permeability, percentage of rock fragments, minimum rooting depths, a low water table, lack of flooding and erodibility, and soil manageability. The map exhibit in Appendix "C" shows land that has been classified as prime farmland within the study areas. A more detailed breakdown of agricultural soils is provided in the "Shasta County Soils Survey Report," prepared by the U.S. Soil Conservation Service, 1974.

In general, the dominant soil type of the plan areas on slopes of less than three percent is Red Bluff Loam (RbA), which is suitable for range, dry land pasture, orchards, and specialty crops. It is classified in Capability Unit II as having very low fertility and being adapted only to those cultivated crops that produce high enough returns to pay for large amounts of fertilizer. A few areas are used for irrigated pasture; growing dry-land crops is generally uneconomical.

A considerable amount of Churn, Perkins, and Tehama loams are found along Clover, Churn, and Stillwater Creeks. These soils, classified in Capability Unit II, are suited to irrigated pasture field crops, shallow root crops, dry-land grain, hay and orchard trees, although nitrogen and phosphorus are usually required fertilizers. Some soils of Capability Unit I are found along the Sacramento River and Churn Creek in the portion of the planning area extending west to I-5. They are the well-drained Churn, Reiff, and Honcut Loams. These soils are the most productive in the area, being suited to all climatically adapted crops, although intensive use can result in depletion of organic matter content and poor cultivating practices. All methods of

irrigation are suitable for these soils. For detail of soil type, see the "Shasta County Soils Survey," by the U.S. Department of Agricultural.

Forage crops and strawberry plants are grown in the Stillwater and Churn Creek Bottom areas. In the Stillwater Plain, only a small proportion of the Class II or Class III land is cropped because of small ownerships (predominantly under five acres) and the marginal returns available from field crops. Strawberry plants, a high value crop, are grown on about 80 acres south of Fig Tree Lane and on 80 acres south of South Bonnyview. North of the Airport, only two acres of strawberry plant production remains where 200 acres were grown a few years ago.

In 1980, Shasta County's 862 acres of strawberry plants had a gross value of \$12,400 per acre. However, an additional 100 acres were plowed under because of marketing problems. It should also be noted that there are far more suitable sites for strawberry production than the market currently will support, growers are selecting the most efficient locations. Strawberry production has shifted from the plan area to superior soils south of Anderson along the Sacramento River.

The draft County General Plan points out that the number of farms has been increasing and the average size of farms has been decreasing, as shown in Table 6. This is the opposite of the national trend toward a smaller number of larger farms, but reflects a phenomenon occurring throughout California and a number of other states, such as Arizona, Florida, Idaho, Oregon, Washington, and Maine. According to the most recent U.S. Census of Agriculture in 1978, approximately 32 percent of all farms were between 10 and 49 acres in size, as shown by Table 7. This, in part, explains why only 40 percent of the total land in farms is enrolled in Williamson Act Contracts, which under Shasta County regulations must satisfy a minimum acreage requirement of 100 acres.

TABLE 6
NUMBER AND SIZE OF SHASTA COUNTY FARMS
(Source: Draft Shasta County General Plan)

	<u>1978</u>	<u>1974</u>	<u>1969</u>
Number of farms	1,046	778	746
Land in farms (acres)	407,914	391,896	548,494
Average size of farm (acres)	390	504	735

TABLE 7
F FARMS BY SIZE
(Source: Draft Shasta County General Plan)

<u>Farms by size</u>	1978		1974	
	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>
Less than 10 acres	129	16%	118	17%
10 to 49 acres	257	32%	218	32%
50 to 179 acres	176	22%	110	16%
180 to 499 acres	115	14%	101	15%
500 to 999 acres	50	6%	52	8%
1,000 to 1,999 acres	38	5%	37	6%
2,000 acres or more	44	5%	43	6%
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
TOTAL	809	100%	679	100%

The minimum parcel size desired by farming residents in Shasta County is the function of a type of agricultural use and whether or not the resident farmer is a full-time or part-time operator. A recent survey by the County Planning Department of parcel-size demand indicates that the minimum parcel for part-time farmers is 5-15 acres as indicated by Table 8.

In contrast, Table 9 indicates the existing number of parcels in the plan area with prime agriculture soils. By comparing this table with the previous table, one can see that there is a significant potential for part-time farming operations involving apiary, field crops, orchard crops, and nursery stock. There could be 29 full-time agricultural operations involving apiary, field crops, orchard crops and nursery stock.

TABLE 8
MINIMUM AGRICULTURE PARCEL SIZE NEEDED FOR
FULL-TIME AND PART-TIME FARMING
(SOURCE: Shasta County Draft General Plan)

	<u>Full-time</u> <u>Acres</u>	<u>Part-time</u> <u>Acres</u>
Apiary	80-100	5-15
Field Crops	50-100	"
Orchard Crops	30-40	"
Nursery Stock	40-60	"
Irrigated Pasture	100-200	"
Grazing	750-1250	40-80

TABLE 9

EXISTING PARCELS IN PLAN AREA WITH PRIME AGRICULTURAL SOILS
 (Source: Redding Planning Department)

Acres	2-9	10-15	16-30	31-40	41-60	61-80	81-99	100*plus
No. of Parcels	424	22	29	6	12	1	3	7

* Three of the seven parcels are enlisted in the Williamson Act.

The main concern with intensive agriculture uses within the plan area is their preservation and protection against premature urbanization.

Past policies to protect agricultural lands have also been made difficult by the 100-acre-minimum limit and the ten-year obligation under the Williamson Act. The purpose of the act is to protect agricultural land from being unnecessarily engulfed by urbanization. Under the act, a landowner is taxed for only one-third of the property's taxable value provided that the value of the land will not reflect for anything but agricultural uses. To insure that this occurs, the landowner must enter into a contract with the local governing entity with a ten-year initial term. To prevent the market from anticipating a change in restrictions on annexation of the land, the annexing community may be bound by the contract. In return for decreased tax revenues from Williamson Act parcels, the State provides subvention funds to the local agency. According to the Shasta County Assessors Office, the amount of reimbursement by the State does not offset the property tax loss to the County. It should also be noted that the Act has been weakened by recent State legislation, which permits property owners a one-time option of withdrawing from the obligation of the Act without penalty. Currently, the only lands under a Williamson Act Contract within the plan area are:

- . Louis Nash Ranch - consisting of 376 acres and located east of Old Oregon Trail, midway between Highway 299 East and Old Alturas Road. The owner of this property has filed a nonrenewal notice meaning that the property has only five years remaining under the Williamson Act.
- . Keller Ranch - consisting of 511 acres and located north of Shasta College and east of Old Oregon Trail. The owner has not filed a nonrenewal notice, therefore the property is obligated another ten years under the Williamson Act.
- . L.C. Smith Property - consisting of 133 acres and located off Smith Road between I-5 and the Sacramento River. Mr. Smith has filed a nonrenewal notice and there is only seven years remaining under the Williamson Act.

The absence of a significant number of Williamson Act contracts coupled with the notices of nonrenewal of the contract agreements by the land-owners indicates that the agricultural lands, under current market conditions, may have more economic value as rural or urban use than as intensive agricultural use.

5. Existing Agricultural Conservation Programs

Until recently there was no community interest in preserving agricultural lands in the Redding area. The 1970 General Plan provides an agricultural land-use classification, but it was essentially used as a means of protecting the area around the Redding Municipal Airport where there is very little prime agricultural soils.

To some degree the City's Agricultural Zoning District provides for small crop hobby farms. For example, any area can be zoned for agricultural uses provided that the average minimum parcel size within the area is one acre and the overall area is at least 20 acres. But the City has not set aside areas within prime soil regions that specifically accommodate this use. This is generally because the value of land makes it more economical for developers to create urban lots with greater density. A key example of this is the Cascade area between Girvan Road and South Bonnyview where the soil is Class I and II. All of this area is currently committed to lots ranging from 10,000 square feet to one-half acre.

The current proposed Land-Use Element of the General Plan proposes to establish a land-use classification specifically for agricultural lands. "Productive Open Space" would consist primarily of existing agricultural land along the Sacramento River and Churn and Stillwater Creeks. These areas are predominantly Class I and II soils. All of these lands are outside the City limits. The minimum parcel size for this category is 30 acres. By permit, a second residence could be placed on the property for a family member or employee of the farming enterprise. "Productive Open Space" could also be designated for forest areas on public lands in west or northwest Redding; however, none are so indicated at this time.

In addition to this classification, the proposed Land-Use Element provides land-use classifications that could serve as buffers between encroaching urban areas and agricultural lands. These include: (1) "Greenway" areas of open space with 20 percent slope or 100-year flood plain areas; (2) "Improved Open Space" lands which are limited to recreational areas; and (3) "Urban Reserve" areas which have a minimum parcel size of 5 to 10 acres per dwelling unit.

Although collectively these land-use classifications can help to conserve agricultural lands, none of them prohibit the extension of sewer trunk lines through or near agricultural lands. Without this restricting policy, it is very likely that land owners of agricultural parcels will request land-use amendments to take advantage of sewer connections to gain higher returns provided by urban land-use. It should be understood that this policy can only be effective if it is also adopted by LAFCO and Shasta County.

6. Public Concerns

- a. Subdivision, rezoning and General Plan amendment pressures of property with prime agricultural soils are causing the resource to be diminished.
- b. Urban subdivisions near intensive agricultural uses may cause land-use conflicts such as dust, odors, dogs, motorbike, trespassers, open gates, water distribution for residential uses versus agricultural uses, use of roads, rural public improvements versus urban public improvements (e.g. curb, gutter and sidewalk), and growth-inducing impacts of sewers.
- c. Urban activity near intensive agricultural uses is destroying the "buffer" effect of large parcels.
- d. The development of urban uses on land with prime agricultural soils will cause residents of the County to rely more on the import of food instead of encouraging local self-sufficiency.
- e. The agricultural needs of small-crop or part-time farming and intensive agricultural uses are not specifically addressed by City zoning.
- f. Williamson Act contracts do little to preserve agricultural lands.
- g. There is no formal City-County policy concerning the extension of sewer trunklines through or near areas that have potential for intensive agricultural uses.
- h. Loss of agricultural uses results in loss of basic income to the area.

G. AIR QUALITY

1. Regional Air Quality

Redding is located within the Sacramento Valley Air Basin. Due to topography and meteorological cycles, this air basin has a great potential for severe air pollution problems. Redding is surrounded on three sides by mountains, which act as a natural holding basin on windless days. The Redding area is also susceptible to persistent low-altitude temperature inversions in the fall and summer.

The primary sources of air pollution in the air basin are: (1) Emissions from internal combustion engines; (2) industrial pollutants; (3) particulate matter from waste burning; and (4) dust from unpaved roads.

There is no question that emissions from vehicles create the greatest air pollution problem within the Sacramento Valley Air Basin; the Shasta County Air Pollution Control District estimates that vehicular emissions account for 70 percent of the total pollution in the Redding area. The most noxious pollutants in the Redding area are particulate matter, carbon monoxide, and total oxidants.

Particulate matter is usually unburned residues of a refining process or dusts produced by grinding or drying industrial products. These fine particles cause soiling of clothing and reduced visibility.

Carbon monoxide is a colorless, odorless, tasteless gas resulting from the combustion of carbon with insufficient air. It is generally a product of automobile exhausts. In concentration, this gas interferes with the distribution of oxygen by the human blood stream.

Smog reactants are usually hydrocarbons and oxides of nitrogen (mostly nitric oxide and nitrogen dioxide). They are usually created by a chemical reaction between sunlight and automobile exhausts. Smog causes eye irritation and plant and animal damage.

Ozone is a typical example of a total oxidant. It is the most dangerous element in air pollution and is used as an index to measure pollution. Effects of total oxidants are generally the same as those caused by smog reactants.

The plan area is fortunate in not having a problem with either sulphur dioxides or radioactive pollutants.

2. Existing Air Quality Programs

The City of Redding relies on the technical personnel of the Shasta County Air Pollution Control District to monitor and control stationary sources of air pollution. The State and Federal governments have pre-empted local government from regulating and controlling emissions from vehicles. It is recognized that the City of Redding has no legal power to control air pollution, but it should consider the effects on local air quality of each specific land-use proposal when exercising land-use controls and promoting orderly growth.

3. Public Concerns

The following concerns have been excerpted from "Non-Attainment Plan For Shasta County, 1979," prepared by the Air Resources Board:

- a. Air quality within the City of Redding cannot be controlled solely at the local level. A substantial amount of air pollution within the City comes from outside the City.
- b. Local, State and Federal governments are all involved with air quality policies and programs. Consequently, coordination among the various levels of government is an important component in planning for improved air quality.
- c. Most of the relatively easy technical solutions for controlling air quality are being used. Further improvements will require controversial and often expensive measures.
- d. There are often trade-offs involved in improving air quality on the one hand and economic and population growth on the other. These trade-offs may eventually result in decreased air quality.

- e. The Sacramento Valley Air Basin has the greatest potential for severe air-pollution problems in the entire United States.
- f. Shasta County's primary pollutant problems are ozone and suspended particulate matter. State and Federal air-quality standards for both of these categories may require the County to adopt restrictive land-use controls as part of the nonattainment plan.
- g. A great deal of the particulate contribution is due to dust from unpaved roads.
- h. Air-quality monitoring and management within the air basin is minimal. It is impossible to accurately assess the impacts and interrelationships of the many air-quality variables.
- i. A spread-out urban pattern will less readily support mass transit than a compact city and will result in more vehicle miles traveled and more air pollution.
- j. Unplanned or poorly planned growth may lead to growth restrictions imposed because of poor air quality. Well planned, efficient growth, on the other hand, may diminish that possibility.
- k. Newly approved industries and commercial uses are not aware that they may be subject to costly retrofit air-pollution devices if the air quality in the air basin worsens. Such devices could be imposed by the Federal Government and the local County Air Pollution Control District.
- l. Increased congestion on arterials from start and stop traffic can reduce air quality in local neighborhoods.
- m. Neither the City nor the County have implemented a bicycle network system to augment automobile transportation.

H. HILLSIDE WATERSHED

1. Hillside Development

Hillsides are a natural resource in that they are valuable as watershed, wildlife habitat and they provide scenic values.

Within the 159-square-mile plan area shown on the next page, approximately 12.5 percent or 20-square miles have a slope equal to or greater than 20-percent grade. The Map Exhibit illustrates that most of this area is situated in the western and northern portion of the plan area and a significant amount extends into the central urbanized area of Redding. As Redding continues to grow and land values increase, there will be increased pressure to develop more of the hillside areas and it is for this reason that the following hillside development issues should be considered in the formulation of goals, objectives and standards.

- a. Disturbance of hillsides can result in the loss of slope and soil stability as well as increased erosion. The removal of vegetation from hillsides deprives the soil of the stabilizing function of roots as well as the moderating effects on wind and water erosion of leaves and branches. Loss of soil stability increases erosion and, thus, lowers downstream water quality as a result of siltation. Downstream wetlands can be injured in this way. Strong rains on unstable slopes can produce mass movements such as landslides, slumps, and flaws, particularly in steeply sloping areas.
- b. Disturbance of hillsides can increase runoff. Development may alter the natural drainage pattern of a hillside, producing increased runoff and erosion. Removal of vegetative cover decreases percolation of precipitation into the soil, thereby reducing the amount of groundwater recharge and adding water to runoff that would ordinarily be transpired by trees and shrubs. Construction of impervious surfaces, such as roads and buildings, decreases the amount of ground-water percolation and thus increases the amount of runoff. Increased runoff, in addition to producing intensified erosion, also creates downstream flood hazards.
- c. Disturbance of hillsides can destroy a community's aesthetic resources. A range of hills frequently marks a community's boundaries and provides an attractive setting for homes and buildings. Degradation of hillsides as a result of erosion, loss of vegetation, and damage to downstream areas deprives a community of its attractive and distinctive setting and decreases real estate values.
- d. Hillside development should also be designed to protect individual homeowners without adding to the cost of home ownership. For example, poorly designed driveway approaches with steep grades may allow storm water to enter garages and may also cause the bottom carriage of some cars to scrape the driveway apron. Another consideration is the inability of some cars to remain parked on a steep driveway with only the emergency brake.

Excessive driveway grade or breakover angle (see Figure 2) and rear bumper dragging at the gutter line can be avoided by proper grading of right-of-way cross section. As a general rule, the driveway grade should not exceed eight percent within the right-of-way area. Of greater importance is the change in grade, which should not exceed 12 percent within any 10 feet of distance.

On downward-sloping driveways entering basement garages, car "bottoming" on the crest can also be avoided by use of eight percent maximum change per ten feet.

Hillside development may create feuds between neighboring property owners because of the need for retaining walls or because of improperly constructed retaining walls. In some instances, a grade difference between adjoining lots reduces privacy, which the homeowner may try to remedy by placing a fence on top of a retaining wall. This situation may result in complaints from the other homeowner because of overshadowing effect of a high wall.



20% SLOPE AREAS

EXHIBIT C

Figure 3 on the following page illustrates some of the factors that create the need for retaining walls on hillside development. In each case, a single-family residence is placed on a minimum lot depth of 100 feet. After applying the maximum grading standards of one and one-half to one for cuts and the minimum front-yard setback of 20 feet, one can see the diminished effect that these have on the usable rear-yard area. Typically, the homeowner will expand the rear yard for a swimming pool or deck by installing a retaining wall usually without the blessing of his neighbor.

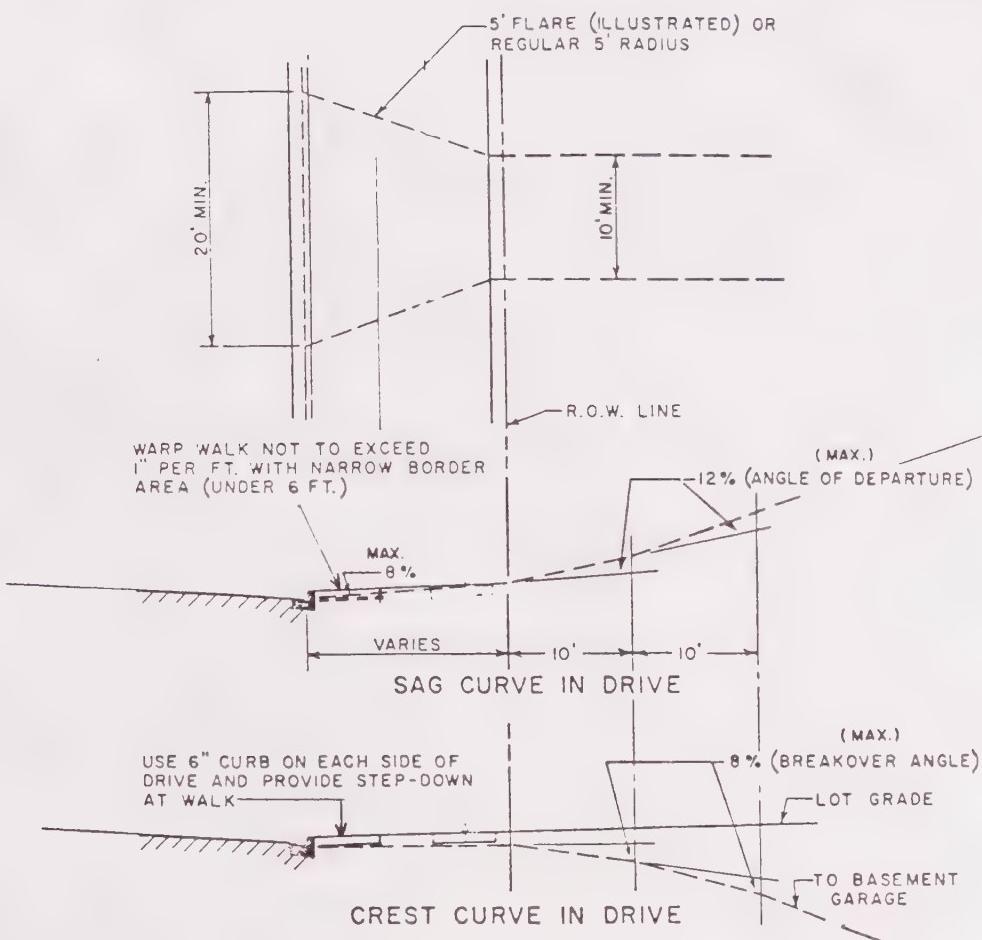
A similar condition may occur in the side-yard setback areas when a property owner wishes to orient his house differently. In either situation, it is believed that the need for retaining walls on excessive cuts can be minimized by specifying larger lot depths and widths for lots with grades that exceed 15 percent.

Another design consideration that can be used to reduce the need for retaining walls and the severity of cut and fill slopes is the reduction in the roadway and right-of-way width. The illustration in Figure 4 on page 46 shows that by reducing the roadway width and front-yard setback when developing on a natural slope of 15 percent, the amount of manufactured slopes is substantially reduced minimizing the need for extensive landscaping and irrigation equipment. An important aspect of this approach is the significant cost reduction to subsequently maintain the manufactured slopes.

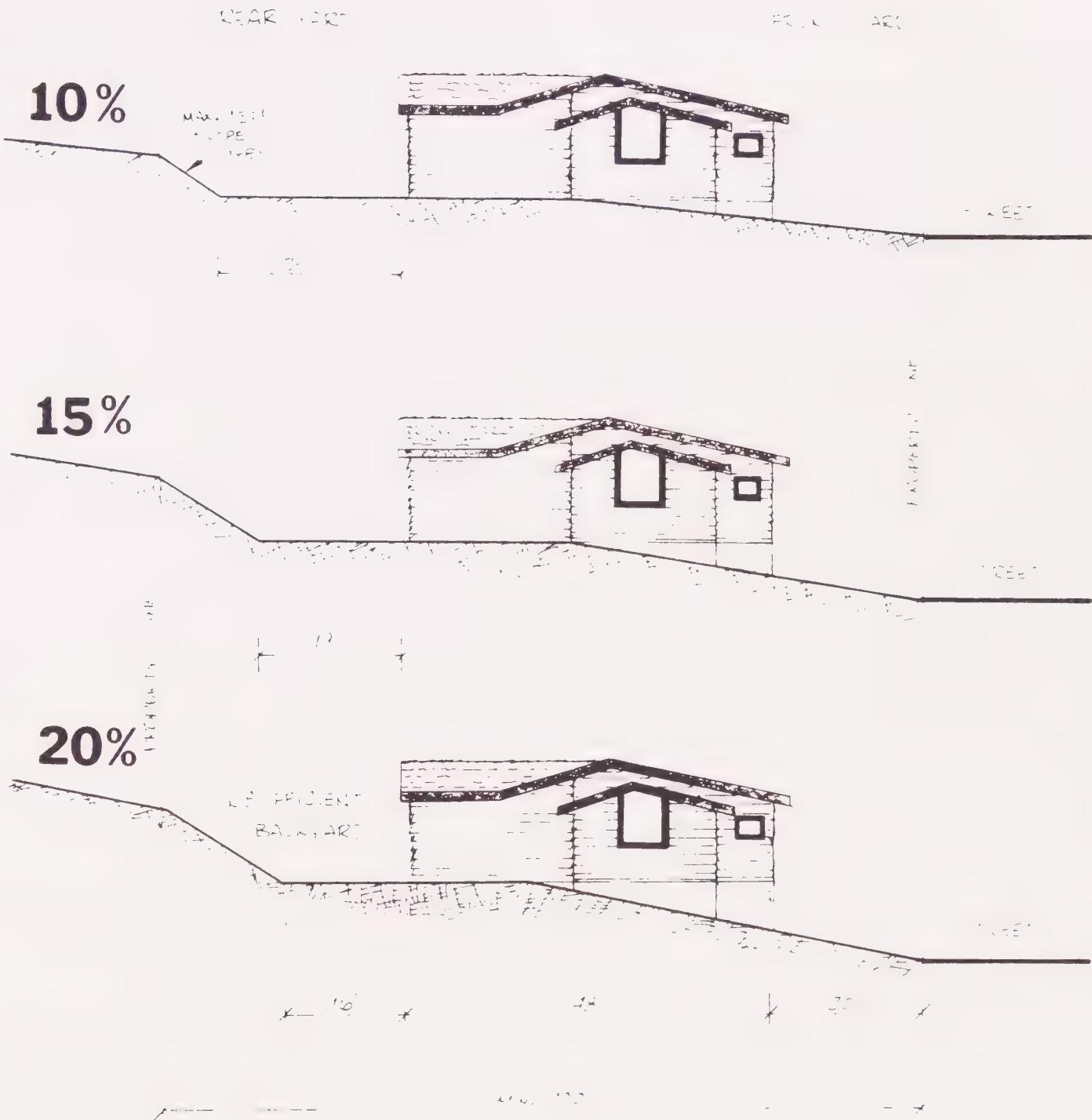
This approach has been successfully applied in hillside areas of San Diego and San Francisco. It could also be applied in Redding to planned developments and to conventional subdivisions on slopes with 15 percent to 20 percent grade. One of the drawbacks would be decreased privacy between units facing the street, but this could be mitigated by orienting the unit to face away from the street.

- e. Wildland fire hazards of hillside development are a real threat in the Redding area. This is particularly true of south and west facing slopes that are vegetated with highly resinous vegetation such as manzanita. These area are generally described on the 20-percent slope map, Exhibit "C."

Where does the City of Redding stand in the area of addressing wildland fire prevention? The City's General Plan Safety Element identifies undeveloped canyons as a primary fire hazard. Defining its goals to "minimize the impact of hazards upon people and property," the Element goes on to set forth general standard statements regarding fire protection. These standards include the location, equipping, and manning of fire services based upon the kinds of fires expected and upon interjurisdictional agreements. In cases of major undeveloped-canyon fires, the City often relies upon California Division of Forestry assistance under an informal mutual-aid understanding. The provision of adequate water-supply design in all areas and restrictive building codes in commercial and industrial areas are additional protective standards touched upon by the element.

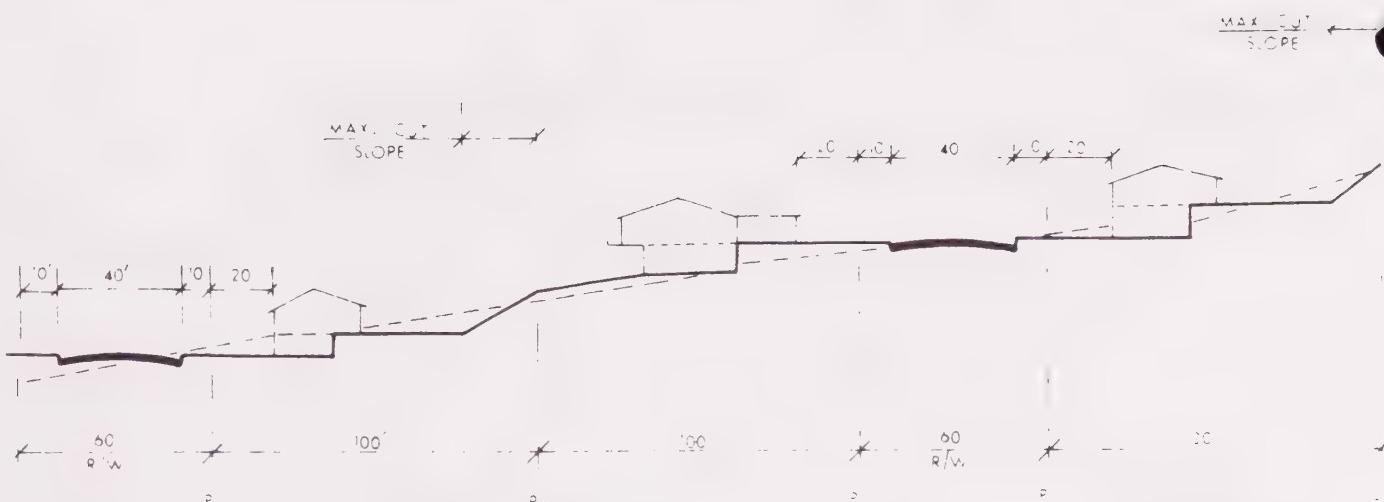


RESIDENTIAL
DRIVeway DETAILS
FOR HILLSIDE SUBDIVISION
FIGURE 2

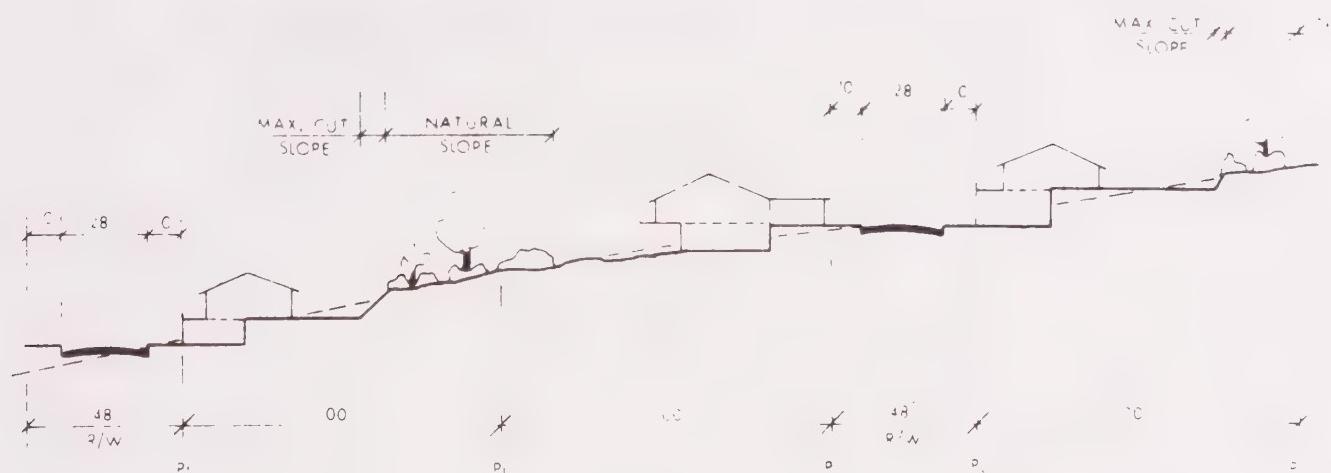


Usable Yard Area Versus Slope

Scale: 1" = 100'



DEVELOPMENT ON 15% SLOPE WITH STANDARD STREET AND SETBACKS PROVIDING NO NATURAL SLOPE



DEVELOPMENT ON 15% SLOPE WITH REDUCED STREET AND SETBACKS AND PROVIDES NATURAL SLOPE

NOTE: The front yard setback is reduced from 20' to 7.5' for the dwelling unit, but a carport may be constructed up to the front property line.

2. Uses Allowed on Hillsides

a. General Plan

It generally is a policy of the Redding General Plan to conserve slopes in excess of 20 percent by placing them in an "Open Space" land-use classification. The intent is to protect them from grading activity of development projects; provide buffer areas between neighborhoods and to create an urban trail system. Other benefits include the preservation of flora and fauna reduced erosion, reduced wild-land fire hazards, and improved community appearance.

Where all of the area of an existing lot exceeds 20 percent, development is usually restricted to one single-family residence. For slopes 20 percent or less, the General Plan allows the following types of land use densities.

**Landuse Allowed By General Plan
According to Slope**

<u>16 - 20%</u>	<u>11 - 15%</u>	<u>6 - 10%</u>	<u>0 - 5%</u>
1 du/10 ac.	1.0 du/10 ac.	1.0 du/10 ac.	All land-use
1 du/ 5 ac.	1.0 du/ 5 ac.	1.0 du/ 5 ac.	categories
1 du/ac.	1.0 du/ac.	1.0 du/ac.	including
2 du/ac.	2.0 du/ac.	2.0 du/ac.	Commercial and
	3.0 du/ac.	3.0 du/ac.	Industrial
	3.5 du/ac.	3.5 du/ac.	
		6 du/ac.	
		9 du/ac.	
		12 du/ac.	
		18 du/ac	
		Office	

b. Zoning Ordinances Development Standards

The City has not adopted a specific hillside zoning classification, but the "B" Combining District is sometimes used to fulfill this purpose. The "B" District establishes nine minimum lots sizes from 10,000 square feet up to five acres per unit. It can be combined with any zoning district to provide lot standards for hillside development.

The standards call for side-yard setbacks from 10-20 feet, which also maintains the view from residential units that may be located across the street.

The variance procedure is encouraged to reduce the amount of cut and fill necessary to meet the City's minimum front-yard setback. Also in cases where the elevation of the lot at a point fifty feet from the center line of a road is seven feet above or below the center line, a garage may be built to within ten feet of the lot.

In addition to the "B" Combining District, the City's Zoning Ordinance employs an "F" Combining District, which requires a site-plan review of all projects within zoning districts that are combined with the "F" designation. The site-plan criteria are established for each zoning district and may include structural height for hillside lots.

Height restrictions in the zoning ordinance also have some benefit in terms of maintaining the view for adjoining residents and the character of the hillside. The maximum height allowed on slopes up to 20 percent according to the current zoning districts is 30 feet. The exception to this is the "R-4" Multiple Family Residential District, which allows up to 50 feet in height; however, this zoning district is generally limited to slopes of ten percent or less in grade.

It could be argued that more hillside integrity can be maintained by limiting the height to a maximum of 20 feet, which would encourage split-level and single-story buildings; but this option would also encourage greater cut and fill-in slopes and increase erosion unless built-up foundations are also required in lieu of slab foundations.

3. Public Concerns

The following is a summary of the public concerns outlined in the preceding narrative:

- a. As Redding urbanizes, the pressure to develop hillside lands will intensify.
- b. Hillside development can result in the loss of soil, removal of vegetation, degradation of downstream water quality and siltation on public right of way. It can result in rockfalls and unstable foundations.
- c. Hillside development can produce an increase in urban runoff and cause downstream flooding.
- d. Hillside development can adversely affect the aesthetic integrity of hills and it can block the views of adjoining residents.
- e. Small hillside lots can create the need for excessive grade cuts and fills, and the need for retaining walls. It can also make some driveways less usable because of steep driveway approaches and can create fire-access problems.
- f. Wild-land fires are a serious threat to hillside development, particularly on the south and west facing slopes.

I. INVENTORY OF OPEN SPACE

Open Space as defined in Government Code Section 65560(b) includes both private and publicly owned land that has natural resource value(s). These

values are discussed in Section II beginning on page 3 of the element. For the purpose of this inventory "Open Space" includes:

1. Publicly owned City parks (improved and unimproved) and public open space that is owned by the City in fee or by easement.
2. Publicly owned open space managed by the Bureau of Land Management (BLM) or other Federal agencies.

1. Inventory of Publicly Owned City Parks, Steep Slopes, and Flood Plain.

This category has been inventoried in the Recreation Element of the General Plan, Volume XI. In summary, the City owns 370.2 acres of improved park land, 786.2 acres of unimproved park land and 530.3 acres of open space which is limited to steep slopes (20 percent) and flood plain. This amounts to a combined total of 1,686.7 acres of parks and open space. A summary of this category is provided in Table 10.

2. Inventory of Public Open Space Managed by Bureau of Land Management.

The Bureau of Land Management oversees approximately three square miles of Federally owned open space. The lands are generally located in the north and west portions of the plan area and consist of steep slope, flood plain and some ridge tops.

In 1981, the Secretary of the Department of Interior, James Watt, asked all west coast cities and counties if any of the BLM land could be used for community expansion. The City of Redding responded with a list of many uses including a sanitary landfill site, parks, urban trails, rifle range, schools and public open space. The City's request is currently being evaluated by the Bureau of Land Management.

TABLE 10
 INVENTORY OF EXISTING CITY OWNED PARKS AND OPEN SPACE
 (Source: Recreation Element)

<u>*LOCATION</u>	<u>NAME</u>	<u>ACREAGE</u>	<u>STATUS</u>
01-P-1	Buckeye Park	9.7	Improved Park
01-P-2	Sulphur Creek Canyon	72.1	Open Space
01-P-3	Sacramento River Trail	163.0	Open Space
01-P-4	None	1.3	Open Space
01-P-5	None	21.4	Open Space
01-P-6	None	1.3	Unimproved Park
01-P-7	None	.5	Unimproved Park
01-P-8	None	.6	Unimproved Park
01-P-9	None	.5	Unimproved Park
01-P-10	None	.5	Unimproved Park
01-P-11	Archaeological Site	4.4	Unimproved Cultural Park
03-P-1	Church Rock Petroglyph Site	10.0	Unimproved Cultural Park
04-P-1	Twin View Ponds	41.2	Improved with Ponds
04-P-2	None	4.3	Open Space
05-P-1	Sulphur Creek Nature Area	30.8	Recreation Facilities
05-P-2	Pepper Tree Neighborhood Park	28.3	Unimproved
05-P-3	None	9.0	Open Space
05-P-4	Lake Redding - Caldwell Park	84.5	Improved Regional Park
05-P-5	None	19.4	Open Space (with fishing access to river)
06-P-1	None	26.0	Open Space
06-P-2	None	44.2	Open Space
06-P-3	Diestelhorst	27.7	Open space & Flood Plain
06-P-4	Sunset Terrace Park	3.0	Improved Park
06-P-5	Foothill Park	2.2	Improved Park
06-P-6	None	11.3	Open Space
06-P-8	Mary Lake Park	30.0	Unimproved Park
07-P-2	Library Park	.3	Improved Park
08-P-1	Benton Airpark	2.3	Improved Park
08-P-2	Blue Gravel Trail	93.4	Open Space

08-P-3	None	.8	Open Space
08-P-4	None	5.6	Open Space
08-P-5	Martin Luther King Park	3.3	Improved Park
09-P-1	South City Park	17.0	Improved Park
09-P-2	Redding Softball Park	4.4	Improved Park
09-P-3	None	3.0	Unimproved Park
10-P-1	Turtle Bay East Regional Park	64.8	Unimproved Park (Nat'l. Resource Park)
10-P-2	Foxtail Park	.9	Improved Park
11-P-2	Shasta Meadows Park	6.4	Unimproved Park
11-P-3	None	2.3	Open Space
11-P-4	Rotary Pocket Park	.3	Improved Park
11-P-5	Graham Park	.2	Improved Park
11-P-6	Alta Mesa Park	6.0	Improved Park
11-P-7	Enterprise Sewer Ponds (Abandoned)	90.5	Unimproved Park
11-P-8	None	2.5	Open Space
11-P-9	None	1.7	Unimproved Park
12-P-1	None	510.0	Unimproved Park & Open Space
15-P-1	South Bonnyview Park	20.4	Unimproved Park
15-P-2	Waverly Pocket Park	.6	Unimproved Park
15-P-3	Creekside Neighborhood Park	2.6	Unimproved Park
15-P-4	Sacramento Drive Neighborhood	2.3	Unimproved Park
15-P-5	None	15.4	Open Space
15-P-6	Cascade Community Park	28.9	Unimproved Park
15-P-7	None	5.5	Unimproved Park

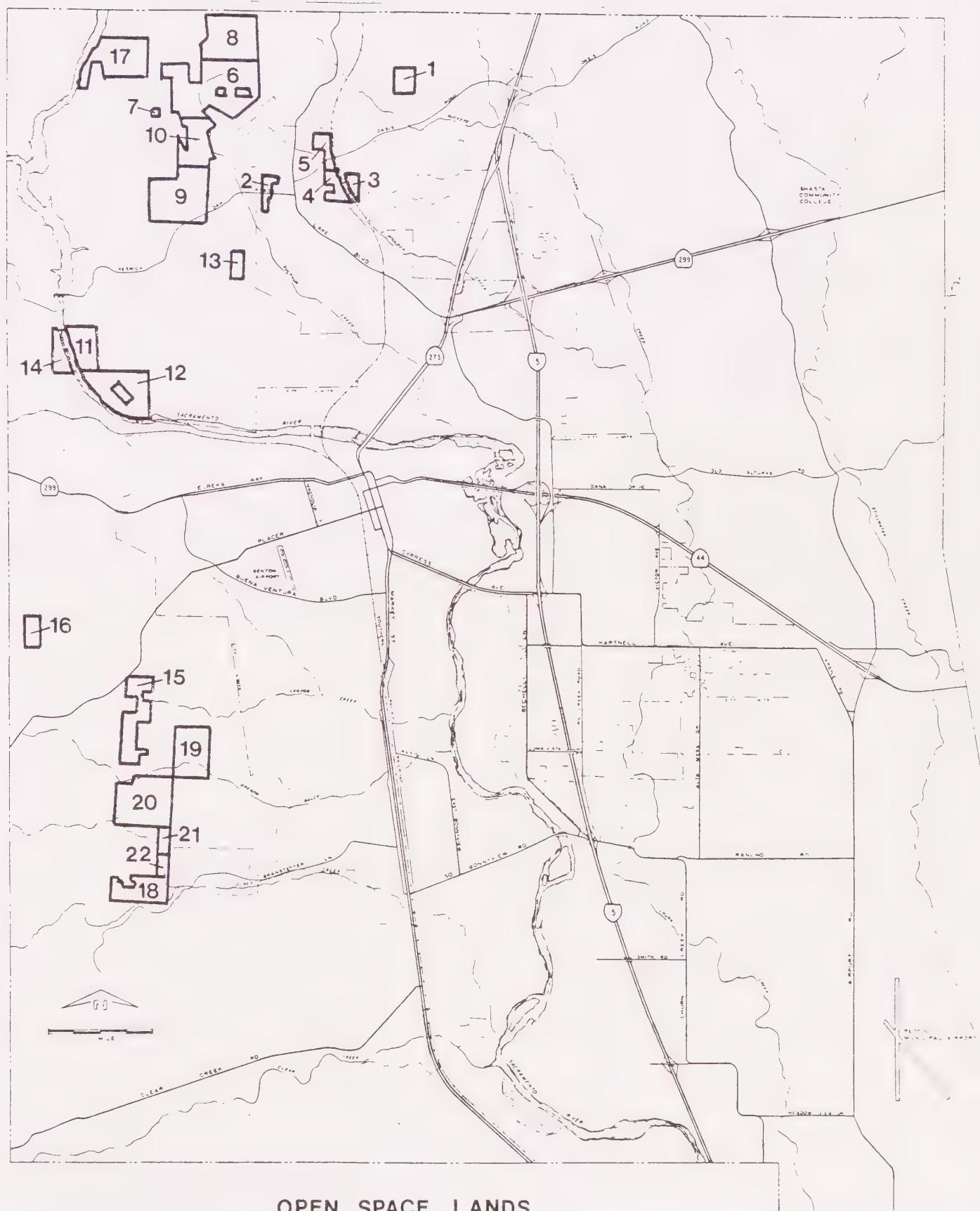
TOTAL ACRES 1,538.6

*Refer to Recreation Element

TABLE 11
INVENTORY OF FEDERALLY OWNED OPEN SPACE
MANAGED BY B.L.M.

The table itemizes all BLM lands in the plan area and indicates the City's proposed use of the lands should BLM make them available.

<u>Location See Attached Map Exhibit</u>	<u>Acres</u>	<u>Proposed Land Use by City</u>
1	40	
2	5	Noise buffer from rail-road operations, urban
3	15	trail and expansion
4	20	of Buckeye Park.
5	50	
6	250	A portion for Parkland Rd.
7	3	
8	160	
9	127	A portion for parks, road and fire station.
10	75	
11	46	River-front trail.
12	40	River-front trail.
13	22	Park and school.
14	40	River-front trail.
15	40	Landfill, road and park.
16	53	Rifle range and water storage tank.
17	300	River-front trail.
18	55	
19	326	Park, road access, urban trail and landfill.
20	132	Park, road access, urban trail and landfill.
21	9	Road Access
22	9	Road Access
<hr/>		1,867 acres



**OPEN SPACE LANDS
MANAGED BY BLM.**

EXHIBIT D

J. SUMMARY OF CONCERNS WITH OPEN SPACE

1. Steep Slopes and Flood Plains

The cost of providing open space ultimately results in the loss of property rights for certain property owners. For example, anytime a landowner loses density allocation to "Open Space," a reduction in potential profits may occur at the time of resale or development.

In an effort to equitably balance individual property rights with respect to the public's need for the preservation of "Open Space," the City maintains that the reclassification of land to "Open Space" must be reasonable. The term "reasonable" means that the land is not inversely condemned and that the economic devaluation is not too severe. It also implies that landowners, who are similarly situated, receive equal treatment. In most cases, these criteria are satisfied through land-use planning techniques. For example, property that is proposed to be classified is evaluated to provide the greatest number of lots for the area that is outside of the 20-percent steep slope area. Where only a small portion of a large area is developable then a cul-de-sac may be planned to allow more lots to balance the loss of land to "Open Space."

Other compensating measures include reclassifying land to permit an increase in land-use density for an area outside the 20 percent area or flood-plain area and encouraging cluster development through planned development zoning districts or through Cluster Subdivision Ordinance.

The cost of not providing Open Space has been detailed in the preceding sections of the Element and in summary these are:

1. Increased soil erosion and siltation and unstable building foundations.
2. Decreased water quality due to turbid water and loss of spawning habitats and fisheries.
3. Reduced scenic quality of hillsides because of erosion.
4. Loss of archaeological resources to development.
5. Reduced park and recreation potential.
6. Land-use conflicts between extractive mineral resources and residential uses or loss of mineral resources.
7. Decreased ability to protect agricultural uses from urban encroachment.
8. Loss of wildlife and vegetation.
9. Loss of valuable water shed.
10. Increase fire hazard by not regulating hillside development.

11. Increased flood hazards caused by increased hillside runoff and by permitting development in the 100-year-flood-hazard boundary.
12. Loss of public access to the river and the creeks.
13. Decreased air quality caused by the loss of oxygen-producing vegetation.
14. Loss of neighborhood identity, increased noise levels and loss of privacy.
15. Increased public expense in providing utilities that require special construction methods (i.e., flood-plain protection, sewer life station, water-booster pumps and oversizing of storm drainage).
16. Loss of tourism and tourist dollars due to diminished resources that attract people to the community.
17. Loss of quality of life.

2. Park Needs

According to the adopted Recreation Element (1980 - 2000), in January, 1982, there were approximately 19,800 dwelling units of all types within the General Plan area. At the City's standard of 2 acres of developed park land for each 100 dwelling units, the current park need is 396 acres. The park-land-area supply as of this same date was as follows:

<u>Park Land</u>	<u>Area in Acres</u>
Improved	370.2
Unimproved	786.2
<hr/> Sub Total	1,156.4

In addition to the 1,156.4 acres, there are currently 530.3 acres dedicated as "Greenway," which includes steep hillsides and flood plains. While not technically park sites, these greenway lands can be used for trails and be a part of scenic, natural resource.

Based on growth projections of the draft Recreation Element, the total park acreage needs for the year 2000 will be 1,474. This leaves a deficit of 318 acres of future park land needed to serve a population of 217,000. Such land acquisition, primarily, will be for neighborhood parks.

A P P E N D I C E S

APPENDIX A
SOURCES CONSULTED

APPENDIX A

SOURCES CONSULTED

SOILS

1. Shasta County Erosion Study, CH2M Hill, 1980.
2. Erosion and Sediment Control Handbook, Department of Conservation Resources Agency, California, 1981.
3. Performance Controls for Sensitive Lands, Planning Advisory Service, 1975.
4. California Surface Mining and Reclamation Policies and Procedures, California Division of Mines and Geology, 1979.
5. Soil Survey of Shasta County Area, United States Department of Agriculture, 1974.

CREEKS AND THE SACRAMENTO RIVER

1. Existing Conditions and Issue Report of the Redding General Plan (1980-2000), Redding Planning Department, 1980.
2. Alameda Creek Urban Streams Study, State Department of Water Resources, 1980.
3. Lakes and Ponds, Urban Land Institute, 1976.
4. Flood Plain Management Handbook, U.S. Water Resources Council, 1981.
5. Storm Water Management, Urban Land Institute, 1975.
6. Flood Damage Prevention Ordinance, Shasta Department of Water Resources, 1981.

WATER QUALITY AND CONSERVATION

1. Redding Region Water Supply Alternatives, CH2M Hill, 1975.
2. Background On Water Pollution, National Water Institute, 1968.
3. Water Conservation in California, Department of Water Resources, 1976.
4. Water Quality Control Plan, State Water Resources Control Board, 1971.
5. Recreation and Land Use: Public Benefits of Clear Waters, ERA, 1980.
6. Recommended Water Quality Management Plans, Bay-Valley Consultants, 1974.
7. California Water, Bulletin No. 201-77, State Department of Water Resources, 1978.
8. IBID, 1979.

WILDLIFE AND VEGETATION

1. Biological Resources - Flora Central Valley Basin California, U. S. Department of Interior, 1975.
2. Status Designation of California Animals and Plants, State Resources Agency, 1978.
3. Trinity River Basin, Fish and Wildlife Management Program, U.S. Department of Interior Water Resources Service, 1980.
4. Mitigation of the Loss of the Anadromous Fishery of the Trinity River, Fish and Wildlife Service, 1980.
5. Planning for Wildlife in Cities and Suburbs, ASPO, 1978.
6. Draft Humboldt County Wildlife Study, Humboldt State University, 1982.

MINERALS

1. Surface Mining and Reclamation Ordinance, State Mining and Geology Board, 1981.
2. Chico General Plan, Chico Planning Department, 1976.
3. Existing Conditions and Issues Report of the Redding General Plan, Redding Planning Department, 1980.

AGRICULTURE

1. Churn Creek Bottom Community Planning Unit, Shasta County Planning Department, 1975.
2. Draft Shasta County General Plan, Sedway and Cooke, 1982.
3. Chico General Plan, Chico Planning Department, 1978.
4. Alternative Techniques for Controlling Land Use, (page 13) Irving Schiffman, 1980.
5. Approaches to Agricultural Land Policies in General Plans, J.L. Minifier, O.P.R., 1982
6. Shasta County Soils Survey, U. S. Department of Agriculture, 1974.

AIR QUALITY

1. Existing Conditions and Issues Report of the Redding General Plan (1980-2000), Redding Planning Department, 1980.
2. Air Pollution In Shasta County, Air Pollution Control District, 1979.
3. Air Quality Considerations in Residential Planning, U. S. Department H.U.D., 1978
4. NON-ATTAINMENT PLAN, Shasta County, A.R.B., 1979.

OPEN SPACE

1. "Open Space," Shasta County and Cities Area Planning Council, Nov. 1971.
2. "Open Space and Conservation Element," City of Redding, 1973.
3. "Open Space Zoning Handbook," Assembly Select Committee on Open Space Lands, California Legislature, 1973.

APPENDIX B
GLOSSARY OF RESOURCE TERMS

APPENDIX B

GLOSSARY NATURAL RESOURCES

(Source: Office of Planning and Research)

Acquisition of Easements - California cities and counties may purchase or accept "open-space easements," whereby the property owner relinquishes for a period of time or in perpetuity the right to alter the property in a manner that will disturb the open-space character of the land (Government Code Sections 51070 et seq.). Easements may also be employed to preserve historic resources and provide public access through private land.

Air Basin - A self-contained region with minimal influence on air quality from contiguous regions. California's 14 air basins have been established by the Air Resources Board.

Air Pollution Control District (APCD) - Single or multi-county agency with legislative authority to adopt and enforce all rules and regulations necessary to control nonvehicular sources of air pollutants.

Air Pollutant Emissions - Discharges into the atmosphere, usually specified in terms of weight per unit time for a given pollutant from a given source.

Air Quality Model - A mathematical relationship between emissions from various sources and the concentrations of these pollutants in the air at various locations.

Air Quality Standards - A health based standard for air pollution established by the Federal government and the State.

Ambient Air Quality - The quality of the air at a particular time and place.

Climatology - The study of long-term, average weather, including winds, temperature, cloud cover, rainfall, and humidity.

Concentrations - A measure of the average density of pollutants, usually specified in terms of pollutant mass per unit volume of air (typically in micrograms per cubic meter) or in terms of relative volume of pollutant per unit volume of air (typically in parts per million).

Conservation - The management of natural resources to prevent waste, destruction, or neglect.

Emission Inventory - Inventory of types, sources, and amounts of air emissions within a geographical region.

Erosion - The process by which soil and rock are detached and moved by running water, wind, ice, and gravity.

Fee-Simple Purchase - Acquisition of the entire ownership rights (the full "fee") to land.

Habitat - The natural environment of a plant or animal.

Hillside Watershed - The total area of nonimpervious surface above a given point on a watercourse or intermittent stream that contributes water to its flow; the entire region drained by a waterway or which drains into a lake, reservoir or the Sacramento River.

Land Capability Classification (U.S. Soil Conservation Service) - A grouping of soils into classes (I-VIII), subclasses, and units according to their suitability for agricultural use, based on soil characteristics and climatic conditions.

Less-Than Fee Purchase - Acquisition of a partial interest in land.

Minerals - Inorganic substances such as gold, iron, and nickel, and compounds formed from such organic substances as natural gas, petroleum, coal, and peat.

Non-Renewable Natural Resources - Inanimate resources that do not increase significantly with time and whose use diminishes the total stock (e.g., minerals and fossil fuels).

Open Space - "Open-space land" is any parcel or area of land or water which is essentially unimproved and devoted to open-space uses as noted below:

1. Creeks, river and flood plain.
2. Riparian habitat for wildlife.
3. Watershed habitat for wildlife.
4. Water recharge areas.
5. Land linking major recreation areas.
6. Unstable soil areas.
7. High fire-risk areas.
8. Areas required for protection of water quality.
9. Scenic corridors along waterways and highways.
10. Parks and recreation purposes.
11. Archaeological sites.
12. Fisheries.

Prime Agricultural Land - "(1) All land which qualifies for rating as Class I or Class II in the Soil Conservation Service land-use capability classifications; (2) Land which qualifies for rating 80 through 100 in the Storie Index Rating; (3) Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture; (4) Land planted with fruit- or nut-bearing trees, vines, bushes, or crops which have a non-bearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than \$200 per acre; and (5) Land which has returned from the production of unprocessed agricultural plant products an annual gross value of not less than \$200 per acre for three of the previous five years" (Government Code Section 5120[c]).

Public Waterway - river or stream for the purposes of Government Code Sections 66477.2, 66478.5 and 66478.6 means those waterways rivers and streams defined in Sections 100 through 106 of the Harbors and Navigation Code, any stream declared to be a public highway for fishing pursuant to Sections 25660 through

25662 of the Government Code, the rivers listed in Section 1505 of the Fish and Game Code as spawning areas, all waterways, rivers and streams downstream from any State or Federal salmon or steelhead fish hatcheries.

Recreational Trails - Public areas that include pedestrian trails, bikeways, equestrians trails, boating routes, trails and areas suitable for use by physically handicapped persons, trails and areas for off-highway recreational vehicles, and cross-country skiing trails.

Regional Air Quality - The ambient air quality in a large area.

Renewable Natural Resources - Resources that can be replaced by natural ecological cycles or sound management practices (e.g., forests and plants).

Riparian Habitat - The land and plants bordering a watercourse or lake.

Sale-back or Lease-back - Variations on fee-simple purchase involving governmental acquisition of property that may, in turn, be sold or leased to a private party, subject to restrictions on use that will retain the land as open space, preserve public access, or prevent modification of the property's cultural and environmental features.

Scenic Highway Corridor - The visible area outside the highway's right of way, generally described as "the view from the road."

Wetlands - Areas that are permanently wet or periodically covered with shallow water, such as freshwater marshes, open or closed brackish marshes, swamps, and mudflats.

Wild and Scenic Rivers - Free-flowing rivers with extraordinary scenic, recreational, fishing, or wildlife values which have been designated by the State Legislature and for which management plans must be prepared.

APPENDIX C
EROSION PREVENTATIVE PRACTICES

Appendix C

EROSION PREVENTION STANDARDS & PRACTICES GRASSES AND/OR NATIVE PLANTS BELOW 3,000 FEET

Russel H. Gripp
Shasta County Farm Advisor

The problem of soil erosion associated with cut and fill operations is a matter of concern to all residents of Shasta County. With this in mind, here are some recommendations that will serve to minimize erosion and pollution of the environment by making use of readily available grass seeds, clovers, or other plants to improve the environment and also to provide food and shelter for wildlife. These materials are useful, especially for all birds and particularly small game birds, as a food source. The following seed mixture is suggested with the idea that the rates would be utilized on a per acre basis:

10 pounds of Blando brome

12 pounds of annual ryegrass

3 pounds of Hikon rose clover or a mix with 1/2 Wilton
rose clover seed (pelletized and inoculated
if sown broadcast or drilled)

There are opportunities to incorporate native floral seeds and with this in mind may I suggest the following on a per acre basis where and when seed might be available:

1 pound Eschscholtzia californica, the California poppy

2 pounds Lupinus species (locally adapted)

½ pound Nemophila insignis, the California baby blue eyes

Selected woody plants of sage and Ceanothus, especially Ceanothus prostratus (squaw carpet) and suitable prostrate sages at higher elevations at or near 3,000 feet or higher. For a more complete list of erosion preventive plant materials, refer to the list on following page.

Research on the seeding of dryland sites within the Mediterranean type climate belts, as in California, shows fall seeding of grasses and floral species to be superior for the North Sacramento Valley. Potted container grown plants will generally perform more satisfactorily if fall or early winter planted into their permanent location. The University of California is currently carrying out research investigations relative to the direct seeding of desirable woody native plant varieties. As this data is developed, a further recommendation can be given relative to this endeavor.

It is recommended that minimal seedbed preparation be carried out on the seeding sites. This would include light discing, chiseling, or ripping more or less on the contour of the face or fill. A further recommendation would be that suitable topsoil be moved aside in the construction zone for later replacement to a depth of 8 to 12 inches over the newly exposed cut and fill.

EROSION CONTROL PLANTS
(Source: City of Redding Planning Department)

The plants listed are generally suited for erosion control within the plan area.

PLANTS	PLANTING DATE	RATE OF GROWTH
Grasses		
BROMUS MOLLIS 'BLANDO' (Blando Brome)	September	8-24 in.
LOLIUM RIGIDUM 'WIMMERA 62' (Wimmera 62 Ryegrass)		12-24 in.
VICIA DASYCARPA 'LANA' (Lana Wollypod Vetch)	to	12-24 in.
HORDELUM VULGARE 'BRIGGS' (Briggs Barley)		12-36 in.
TRIFOLIUM HIRTUM (Rose Clover)		12-24 in.
TRIFOLIUM INCARNATUM (Crimson Clover)	October	12-24 in.
Ground Cover*		
ATRIPLEX SEMIBACCATA (Australian Saltbush)	January	1' high x 6' spread
BACCHARIS PILULARIS (Dwarf Coyotebush)	to	1-2' high x 6' spread
COTONEASTER 'LOWFAST' (Cotoneaster)	March	1' high x 15' spread
Shrubs*		
CISTUS SALVIIFOLIUS (C. VILLOSUS 'PROSTRATUS') (Sageleaf Rockrose)	January	2' high x 6' spread
ERIGONUM FASCICULATUM 'THEODORE PAYNE' (California Buckeye)	to	1-2' high x 4' spread
FALLUGIA PARADOXA (Apache Plume)		3-8' high x 3-8' spread
SYMPHORICARPOS ORBICULATUS (Indian Current)	March	6' high x 6' spread

*Shrub and ground cover should not be planted during first year. Area first must be stabilized by grasses.

For best results, shrubs and ground cover should be watered for the first year. Seeding on such sites might be carried out in conjunction with a prime contract or on a separate arrangement based on appropriate time for seeding, a seeding which would be carried out between September 20 to approximately November 1 within any given year. The above seeding recommendations are intended for use on projects located below 3000 feet in the Sacramento Valley drainage system.

Soils of the red-phase group should have a preplant application of a suitable fertilizer. This might be a combination of treble superphosphate at the rate of 500 pounds per acre plus 150 pounds of ammonium nitrate. Other suitable materials that might be used as a substitution would be the incorporation of 400 pounds of 11-48-0 or 300 pounds of 21-53-0. These latter materials would be used as substitute treatments, not in addition to the first recommendation.

Seeding methods for these sites could be carried out by hydro-seeding or broadcast arrangement followed by application of a thin layer of straw. In the event of dry weather, it would be advisable to apply supplemental water through a sprinkler irrigation system in order to facilitate early and satisfactory germination and establishment of the grass and cover plants. The above mixture once established should, in most circumstances, reseed for the following year. A well established grass cover of the type recommended above will minimize soil erosion and highway maintenance in the cut and fill areas.

For small areas of reseeding, considerably smaller than indicated in the per acre recommendation, utilize the proportion of seed mix shown above, but apply the seed at the rate of 2 pounds per 1,000 square feet. The nitrogen and phosphate fertilizers could be applied at the rate of 10 pounds of 11-48-0 per 1,000 square feet or substitute other appropriate materials. It should be emphasized that the fertilizers should be worked into the soil as a preplant treatment.

Soil slopes of a steeper grade than 20-30 percent can be seeded and stabilized with a cover of burlap held in place by small wooden pegs until the plant seeds have germinated and rooted.

Spring mowing and fire hazard reduction may be carried out, if necessary, after the plants have matured a new seed crop in the spring or early summer.

Hydroseeding/Hydromulching (EPA-California May, 1978)

General

Hydroseeding/hydromulching is the process of spraying seed, mulch, and fertilizer using jets of water applied under pressure. The process should be used on steep slopes too difficult to manually broadcast or drill and on serrated cuts where it is necessary to wash seed into cracks and crevices. Hydromulching should not be used under conditions of high temperatures and winds unless irrigation is used. The slope surface should be roughened to a depth of two inches.

Hydroseeding

- Seeds may be applied without fiber when using a gear pump.
- Seeds and fiber should be applied by using a recirculating centrifugal pump.
- When fiber is used to ensure an even suspension of seed, a maximum of 150 pounds of fiber per 1,500 gallons of water is recommended.

Hydromulching

- Fiber should be applied to the slopes at a continuous and uniform rate, forming a fiber mat from 1/16 to 1/18 inch thick.
- The application rate of fiber should be a minimum of 2,000 lb/acre.
- Frost heave will damage the fiber mat, therefore, proper surface and subsurface-drainage measures shall be used to minimize the occurrence of frost heave.
- Material which inhibits germination or growth should not be present in the mixture.
- Mixing should be performed in a tank with a continuous agitating system of sufficient operating capacity to produce a homogeneous slurry of fiber, seed, fertilizer, and water in the designated proportion.
- Water should be added to the tank with the agitation system operating at part speed. The seed should be added first, followed by the fertilizer and fiber. The mixture should be agitated at full speed when the tank is one-half full of water, seed and fertilizer. The fiber should be added only after the tank is at least one-third full and should be completely added by the time the tank is three-fourths full.
- The maximum amount of time to mix fertilizer, seed, and fiber is one hour in order to prevent seed deterioration.
- Application of seed solutions to serrated slopes should be done in two separate operations. The first operation should mix water and seed with just enough fiber to ensure an even suspension of seed, but not more than 150 pounds of fiber per 1,500 gallons of mix. This would be used primarily to wash seed into cracks and crevices. The second operation should apply fiber mulch material and fertilizer at the minimum rate of 2,000 pounds of fiber per acre.

The following categories of erosion control methods and treatment can be found in the referenced texts.

Surface Protection and Mulching (EPA-California, May 1978)

Chemical Stabilizers, Netting, and Mulch Blankers (USDA-SCS, Davis, California, September 1977)

Gully Erosion Protection (USDA-SCA, Davis, California, September 1977)

Slope Stabilization (EPA-California, May 1978)

Diversions and Dikes (EPA-California, May 1978)

Channel Protection (EPA-California, May 1978 and USDA-SCS, Davis, California, September 1977)

Sediment Traps and Detention Basins (EPA-California, May 1978)

APPENDIX D
WILDLIFE CAPABILITY STUDY

HABITAT CAPABILITY OF SUPPORTING
WILDLIFE SPECIES IN THE REDDING AREA
(Source: Department of Fish and Game)
(Prepared by Tom Stone)

SPECIES - BIRDS	1 acre	5 acre	10 acre	20 acre	40 acre	80 acre
Mallard	L	M	H	H	H	H
Wood Duck	L	L	M	H	H	H
Common Merganser	L	L	M	H	H	H
Red-Shouldered Hawk	L	L	L	M	H	H
Turkey (Wild)	L	L	L	M	M	H
California Quail	L	M	H	H	H	H
Ring-necked Pheasant	L	L	L	M	H	H
Great Blue Heron	L	L	L	M	H	H
Killdeer	M	H	H	H	H	H
Western Sandpiper	L	M	H	H	H	H
Mourning Dove	L	M	H	H	H	H
Screech Owl	L	L	M	H	H	H
Great Horned Owl	L	L	L	M	H	H
Common Nighthawk	M	H	H	H	H	H
Anna's Hummingbird	L	M	H	H	H	H
Belted Kingfisher	L	L	M	M	H	H
Common Flicker	L	L	M	H	H	H
Nuttall's Woodpecker	L	L	M	M	H	H
Acorn Woodpecker	L	M	H	H	H	H
Western Kingbird	L	M	H	H	H	H
Black Phoebe	L	M	H	H	H	H
Ash-throated Flycatcher	L	L	M	M	H	H
Tree Swallow	L	L	M	H	H	H
Bank Swallow	L	L	L	M	M	M

General Comments: These habitat capability ratings are predicated on the basis that there is adequate riparian vegetation and adjacent habitat to support these listed species. This list does not reflect wildlife populations in an entire riparian habitat parcel because it is assumed that no development should occur in the riparian zones.

L - Low habitat capability
M - Moderate habitat capability
H - High habitat capability

SPECIES - BIRDS	1 acre	5 acre	10 acre	20 acre	40 acre	80 acre
Scrub Jay	M	H	H	H	H	H
Plain Titmouse	H	H	H	H	H	H
Common Bushtit	M	H	H	H	H	H
White-breasted Nuthatch	L	M	H	H	H	H
Bewick's Wren	L	M	H	H	H	H
Mockingbird	H	H	M	M	L	L
Robin	H	H	H	M	M	M
Roby-crowned Kinglet	M	H	H	H	H	H
Starling	H	H	H	H	H	H
Yellow Warbler	L	M	H	H	H	H
Yellow-rumped Warbler	L	M	H	H	H	H
Yellowthroat	L	L	M	H	H	H
Yellow-breasted Chat	L	L	M	H	H	H
Western Meadowlark	L	L	M	H	H	H
Red-winged Blackbird	L	M	H	H	H	H
Brewer's Blackbird	M	H	H	H	H	H
Northern Oriole	L	M	H	H	H	H
Black-headed Grossbeak	L	M	H	H	H	H
Rufous-sided Towhee	M	H	H	H	H	H
Song Sparrow	L	M	H	H	H	H
Black-tailed Hare	L	M	H	H	H	H
Brush Rabbit		L	M	H	H	H
Beechey Ground Squirrel		L	M	H	H	H
Western Grey Squirrel	L	M	H	H	H	H
Muskrat		L	M	H	H	H
Porcupine	L	L	M	M	H	H
Grey Fox		L	L	M	H	H
Coyote			L	M	H	H
Black Bear					L	M
Racoon		L	M	H	H	H
Ringtail Cat		L	M	H	H	H
Mink		L	M	M	H	H
Striped Skunk	L	M	H	H	H	H
Spotted Skunk		L	M	H	H	H
River Otter		L	M	M	H	H
Bob Cat			L	M	H	H
Deer			L	L	M	H

HABITAT CAPABILITIES OF SUPPORTING WILDLIFE SPECIES
 DEVELOPMENT IN GRASSLAND HABITATS WITHIN CITY OF
 REDDING PLANNING AREA

SPECIES - BIRDS	1 acre	5 acre	10 acre	20 acre	40 acre	80 acre
Burrowing Owl	L	L	M	M	H	H
Western Kingbird	L	L	M	H	H	H
Say's Phoebe	L	L	M	H	H	H
Horned Lark	L	L	M	H	H	H
Rock Wren	L	L	M	H	H	H
Western Bluebird	L	L	M	H	H	H
Loggerhead Shrike	L	L	M	H	H	H
Western Meadowlark	L	L	M	H	H	H
American goldfinch	L	L	M	M	H	H
Lesser goldfinch	L	L	M	H	H	H
Savannah Sparrow	L	L	M	H	H	H
SPECIES - MAMMALS						
Black-Tailed Hare	L	M	H	H	H	H
Beechey Ground Squirrel	L	M	H	H	H	H
Coyote	L	L	L	L	M	M
Badger	L	L	L	M	M	H

General Comments: The grassland habitat type is based on the presumption of no woody vegetation present.

Raptors - both soaring hawks and owls forage in this habitat type but do not nest in this habitat type.

HABITAT CAPABILITIES OF SUPPORTING WILDLIFE SPECIES
 DEVELOPMENT IN OAK-GRASSLAND HABITAT TYPES WITHIN
 CITY OF REDDING PLANNING AREA

SPECIES - BIRDS	1 acre	5 acre	10 acre	20 acre	40 acre	80 acre
Red-tailed Hawk		L	L	M	H	H
Kestrel		L	L	M	H	H
Turkey (wild)			L	L	M	H
California Quail		L	L	L	M	M
Green Heron*	L	L	M	H	H	H
Killdeer	L	L	M	H	H	H
Morning Dove	L	L	M	H	H	H
Screech Owl	L	M	M	H	H	H
Barn Owl	L	L	M	M	H	H
Burrowing Owl	L	L	M	H	H	H
Poor-will	L	L	M	H	H	H
Acorn Woodpecker	L	L	M	H	H	H
Lewis' Woodpecker	L	L	M	H	H	H
Western Kingbird	L	M	H	H	H	H
Say's Phoebe	L	L	M	H	H	H
Ash-throated Flycatcher	L	L	M	M	M	M
Western Flycatcher	L	L	M	M	M	M
Horned Lark	L	M	M	H	H	H
Barn Swallow	L	M	H	H	H	H
Tree Swallow	L	M	M	H	H	H
Scrub Jay	L	M	M	M	M	M
Yellow-billed Magpie	L	L	M	H	H	H
Common Crow	L	L	M	H	H	H
Plain Titmouse	L	M	H	H	H	H
Common Bushtit	L	M	H	H	H	H
White-breasted Nuthatch	L	M	M	H	H	H
Robin	M	M	L	L	L	L

General Comments: Live Oak, Blue Oak, White Oak or Nalley Oak in Association with grassland.

* Within three miles of permanent stream.

SPECIES - BIRDS	1 acre	5 acre	10 acre	20 acre	40 acre	80 acre
Western Bluebird	L	M	M	H	H	H
Loggerhead Shrike	L	L	M	H	H	H
Western Meadowlark	L	L	M	M	M	M
Brewer's Blackbird	L	L	M	H	H	H
Northern Oriole	L	M	M	H	H	H
House Finch	L	M	M	M	M	M
American Goldfinch	L	M	H	H	H	H
Lesser Goldfinch	L	M	H	H	H	H
Savannah Sparrow	L	L	M	M	M	M
SPECIES - MAMMALS						
Black-tailed Hare	L	M	M	H	H	H
Beechey Ground Squirrel	L	M	H	H	H	H
Coyote	L	L	L	L	M	M
Badger	L	L	L	M	M	M

HABITAT CAPABILITIES OF SUPPORTING WILDLIFE SPECIES
DEVELOPMENT IN OAK-WOODLANDS HABITAT TYPE WITHIN
CITY OF REDDING PLANNING AREA
(e.g. Oaks, Digger Pine with brush understory)

SPECIES - BIRDS	1 acre	5 acre	10 acre	20 acre	40 acre	80 acre
Red-tailed Hawk	L	L	M	M	H	H
Kestrel	L	L	M	H	H	H
Turkey	L	L	L	L	M	H
California Quail	L	L	M	H	H	H
Mountain Quail	L	L	L	M	H	H
Killdeer			L	L	L	L
Morning Dove	L	L	M	H	H	H
Roadrunner		L	L	M	H	H
Screech Owl	L	L	M	H	H	H
Great Horned Owl		L	L	M	H	H
Anna's Hummingbird	L	L	M	H	H	H
Rufous Hummingbird	L	L	M	H	H	H
Common Flicker	L	L	M	H	H	H
Acorn Woodpecker	L	M	H	H	H	H
Lewis's Woodpecker	L	L	M	H	H	H
Ash-throated Flycatcher	L	L	M	M	H	H
Violet-green Swallow	L	L	M	H	H	H
Tree Swallow	L	L	M	H	H	H
Scrub Jay	L	M	H	H	H	H
Plain Titmouse	L	M	H	H	H	H
Common Bustit	L	M	H	H	H	H
White-breasted Nuthatch	L	M	H	H	H	H
Bewick's Wren	L	L	M	H	H	H
House Wren	L	M	H	H	H	H
Blue-gray Gnatcatcher	L	L	M	H	H	H
Hutton's Vireo	L	L	M	M	H	H
Warbling Vireo	L	L	M	M	H	H
Yellow Warbler	L	L	M	H	H	H
Black-headed Grosbeak	L	L	M	H	H	H
Rufous-sided Towhee	L	L	M	H	H	H
Brown Towhee	L	L	M	H	H	H

SPECIES - BIRDS	1 acre	5 acre	10 acre	20 acre	40 acre	80 acre
Fox Sparrow	L	L	M	H	H	H
White-crowned Sparrow	L	L	M	H	H	H
SPECIES - MAMMALS						
Opossum	L	L	M	H	H	H
Black-tailed Hare	L	L	M	M	M	M
Brush Rabbit	L	L	M	M	H	H
Beechey Ground Squirrel	L	L	M	M	M	M
Western Grey Squirrel	L	L	M	M	M	M
Porcupine	L	L	L	M	M	M
Grey Fox		L	L	M	H	H
Coyote		L	L	M	H	H
Black Bear					L	M
Racoon		L	L	M	M	M
Striped Skunk	L	L	M	M	H	H
Bobcat		L	L	M	M	H
Deer			L	L	M	M

HABITAT CAPABILITY OF SUPPORTING WILDLIFE SPECIES
DEVELOPMENT IN CHAPARRAL HABITATS WITHIN
CITY OF REDDING PLANNING AREA

SPECIES - BIRDS	1 acre	5 acre	10 acre	20 acre	40 acre	80 acre
California Quail	L	L	M	M	H	H
Mountain Quail	L	L	M	M	H	H
Roadrunner	L	L	L	M	M	H
Poor-will	L	L	M	H	H	H
Anna's Hummingbird	L	L	M	H	H	H
Dusky Flycatcher	L	L	M	M	H	H
Scrub Jay	L	L	M	H	H	H
Wrentit	L	L	M	H	H	H
California Thrasher	L	L	L	M	H	H
Phainopepla	L	L	L	M	H	H
Orange-crowned Warbler	L	L	M	H	H	H
Rufous-sided Towhee	L	M	M	H	H	H
Brown Towhee	L	M	H	H	H	H
Sage Sparrow	L	L	M	H	H	H
 SPECIES - MAMMALS						
Brush Rabbit	L	L	M	H	H	H
Beechey Ground Squirrel	L	M	H	H	H	H
Gray Fox	L	L	L	M	H	H
Coyote	L	L	L	L	M	M
Ringtail Cat	L	L	M	M	H	H
Bobcat			L	M	H	H
Deer				L	M	H

APPENDIX E
ENDANGERED PLANT SPECIES IN THE REDDING AREA

Legend

- 1** CRYPTANTHA CRINITA (CRCR-1)
SILKY CRYPTANTHA
- 2** ASTRAGALUS PAUPERCULUS (ASPA-3)
RATTLE WEED
- 3** ORCUTTIA VENOSA (ARUE)
ORCUTT GRASS

ARNICA VENOSA (ARUE)
(VARIOUS LOCATIONS THROUGHOUT
PLAN AREA)



EXHIBIT
Endangered Plant Species

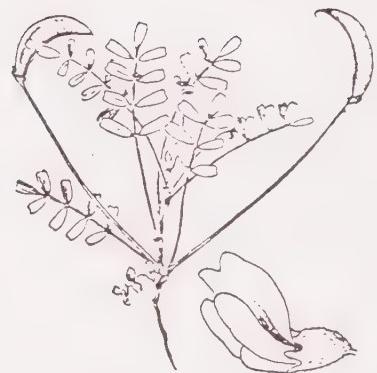
ENDANGERED PLANT SPECIES IN THE REDDING AREA

Astragalus Pauperculus

Astragalus tener var. *Bruceae* M. E. Jones, Rev. N. Amer. Astrag. 268. 1923.

Annual, branching from the base, the branches 5-10 cm. long, sparsely strigose. Leaflets mostly 7-9, cuneate or oblong, retuse, 4-6 mm. long, strigose beneath, sparsely so or glabrate above; peduncles very slender, 2.5-3.5 cm. long; flowers short-racemose, 1-6; calyx-tube campanulate, about 2.5 mm. long, black-hairy; teeth subulate, 1 mm. long; corolla purple, 7 mm. long; pod linear-oblong, falcate, barely 2 cm. long, 4 mm. wide, acute at apex, distinctly flattened laterally, shallowly and narrowly sulcate dorsally, glabrous and mottled.

Heavy clay soils, Upper Sonoran Zone; Sacramento Valley and adjoining foothills, Butte and Tehama Counties, California. Type locality: plains of Butte County, California. March-April.



Cryptantha crinita Greene. Silky Cryptantha. Fig. 4285.

Cryptantha crinita Greene, Erythea 3: 66. 1893.

Stems 15-30 cm. high, branching from near the base, the branches rather strict, strigose and also hirsute. Leaves linear or very narrowly oblanceolate, the lower 2-3 cm. long; spikes usually in pairs on very slender peduncles, dense and conspicuously white-villous when young, elongating to 4-6 cm. in age; pedicels 1-2 mm. long; corolla 3-4 mm. broad; fruiting calyx 5-6 mm. long, densely and conspicuously white-villous-hirsute, the lobes erect; nutlets solitary, ovoid, abruptly attenuate above, 2.5 mm. long, the dorsal side rounded on the back, microscopically papillate and with a few low obscure tubercles.

Gravelly or sandy places in creek bottoms, Upper Sonoran Zone; foothills at the head of the Sacramento Valley, Shasta County, California. Type locality: Cow Creek, Shasta County. April-May.



APPENDIX F
MODEL OPEN SPACE ORDINANCE

CHAPTER 18.37

OPEN SPACE (OS) DISTRICT

Section 18.37.010. Generally.

The Open Space District is established to identify, classify, and protect lands designated for public and private uses related to open space and recreation, to preserve and protect these lands as a limited and valuable resource to enhance and maintain the public amenities accrued from the preservation of the scenic beauty; to identify and protect lands whose unrestricted use might constitute a hazard to the public health, safety, and welfare; and to implement the Conservation/Open Space Element of the General Plan.

Section 18.37.020. Purpose.

It is the purpose of the Open space District to establish standards for the development of lands identified by the Conservation/Open Space Element of the General Plan as having open space value to the community in one or more of the following categories:

- (a) Lands requiring the protection of unique or rare wildlife habitat.
- (b) Lands having slopes of or exceeding 20 percent or subject to similar geotechnical hazard potential, whose unrestricted use might endanger the public health, safety, or welfare.
- (c) Areas of identified archaeological value.
- (d) Buffer areas which separate incompatible districts and uses.
- (e) Airport approach areas.
- (f) Scenic open-space land consisting of ridge lines, hilltops, and their slopes having prominent views from the City, and especially those which may serve as key vantage points.
- (g) Flood-plain areas of the Sacramento River and its tributaries.
- (h) Links between major recreation and open-space reserves.
- (i) Any other publicly or privately owned open space which, in the opinion of the Planning Commission, functions as part of the open-space system of the City.

Section 18.37.030. Definitions.

- (a) "Improved Open Space" open-space land having been improved for both public and private recreational activities.
- (b) "Natural Resource" includes but is not necessarily limited to stream, watersheds, groundwater recharge areas, soils, wildlife habitat, special land forms, and natural vegetation.

- (c) "Open-Space Land" is any parcel or area of land or water which is essentially unimproved and devoted to open-space uses, including:
 - (1) Creeks, rivers, and flood plains.
 - (2) Riparian habitat for wildlife.
 - (3) Watershed habitat for wildlife.
 - (4) Water recharge areas.
 - (5) Land linking recreational areas.
 - (6) Unstable soil areas.
 - (7) High fire risk areas.
 - (8) Areas required for protection of water quality.
 - (9) Scenic corridors along waterways and highways.
 - (10) Recreational activities.
 - (11) Archaeological site.
 - (12) Fisheries.
- (d) "Open-Space District" any area of land or water designated open space and subject to all of the terms and regulations of this chapter.
- (e) "Recreation Land" any area of land or water suitable and/or designated for recreation uses.
- (f) "Scenic Open Space" any area of land or water open space, either natural or improved, that enhances the appearance of the community.

Section 18.37.040. Permitted Uses.

Uses permitted in the Open Space District shall be as follows:

- (a) Greenways.
- (b) Wildlife sanctuaries, including wetlands, preserves, fisheries, apiaries, and aviaries.
- (c) Public forests.
- (d) Fire breaks required by the Fire Marshal.
- (e) Passive recreational activities such as walking, nature study, etc.
- (f) Fishing activities.
- (g) Swimming.

Section 18.37.050. Uses Requiring Use Permits.

- (a) Uncovered recreational facilities, including picnic areas, restrooms.
- (b) Improved trails for pedestrians, bicyclists, and equestrians, including the use of interpretive signing.
- (c) Access roads and parking areas.

- (d) One dwelling unit and accessory buildings, thereto, providing an entire parcel lies within the Open Space District.
- (e) Public and private botanical gardens and arboretums.
- (f) Public utility easements.
- (g) Private gardens and landscaping when the use is an extension of adjoining lot or lot encumbered by open-space easement.

Section 18.37.060. Development Standards Purpose.

The purpose of these development standards are to evaluate proposed uses based upon the following:

- (a) The appropriateness of the site for the proposed use.
- (b) The effects of the proposed use on adjacent properties and the community.
- (c) The demonstratable need for the proposed use.
- (d) The care taken to maintain the naturalness of the site and blend the use with the site and its surroundings.
- (e) Environmental impact documents.

Section 18.37.070. Development Standards.

The following standards are in addition to any and all other development criteria set forth above and in the Subdivision Ordinance and the Grading Ordinance. The provision of this section shall prevail over conflicting provisions of any other section.

- (a) Natural features such as rock outcroppings, creeks and other natural drainage courses, and wooded areas shall be protected and preserved.
- (b) Natural vegetation shall remain undisturbed except as necessary to construct improvements and to eliminate hazardous conditions, unless replanted with native, fire-retardant vegetation.
- (c) Siting of structures and structural elevations shall be compatible with the natural landscape and so located as not to substantially disrupt the natural silhouette of prominent ridge lines and hilltops.
- (d) Grading shall not alter the natural contours of the terrain except as necessary for building sites or to correct unsafe conditions. The locations of buildings, roads, and trails shall be planned to follow and conform to existing contours.
- (e) Where uses listed in Section 18.37.050 as a, b, c, d, e, and f are proposed in areas having slopes of 20 percent or more exceeding 20 percent or having similar geotechnical hazard potential, a geologic soils investigation and report will be required. This shall consist of a combined in-depth geologic and soils investigation and report prepared by a registered geologist certified by the State of California as an engineering

geologist, and by a licensed civil engineer qualified in soil mechanics. Such report shall be based on surface and subsurface examinations and shall fully and clearly present: (a) all pertinent data, interpretations, and evaluations; (b) the significance of the data, interpretations and evaluations with respect to the actual development or implementation of the intended land use, and with respect to the effect upon future geologic processes both on and off the site; and (c) recommendations for any additional investigations that should be made. All costs and expenses incurred as a result of the requirements of this section shall be borne by the applicant.

Section 18.37.080. Height.

Building height limit shall not exceed 15 feet or for slope areas an average of 15 feet, providing the location of the structure and proposed height is not in conflict with (c) above.

Section 18.37.090. Utilities.

All new utility lines other than major transmission lines shall be placed underground. This requirement may be waived by the Planning Commission where topography, soil, or other conditions make such underground installation unreasonable or impractical.

CHAPTER 18.37 A

OS-I COMBINING DISTRICT

Section 18.37A.010. Purpose.

The purpose of the Improved Open-Space District is to:

- (a) Provide regulations which will permit more intensive uses of open-space land than are allowed in the Open Space District.
- (b) Ensure the ability of publicly and privately owned open space to provide for the recreational needs of Redding residents.
- (c) Ensure that recreation areas blend harmoniously with, and are complementary to, adjacent land uses.

Section 18.37A.020. Applicability.

The regulations set forth in this chapter shall apply in all Open-Space Districts with which I Districts are combined.

Section 18.37A.030. Permitted Uses.

- (a) Uses permitted outright in the Open Space District.
- (b) Publicly and privately owned parks, playgrounds, recreation areas and picnic areas, excepting buildings, structures, and parking areas thereon.

- (c) Golf courses and country clubs, excepting buildings, structures, and parking areas thereon.
- (d) Tennis courts.
- (e) Improved trails for pedestrians, bicyclists, and equestrians, including the use of interpretive signing.
- (f) Arboretums.
- (g) Historic and monument sites.
- (h) Other private recreation facilities which are a part of any planned development and which is recorded as open space owned in common. Regulations in this part shall be in addition to any open-space regulations contained in Section 18.36.090 of the Planned Development District.

Section 18.37A.040. Uses Requiring a Use Permit.

Uses permitted subject to obtaining a use permit in each case shall be as follows:

- (a) Buildings and structures accessory to and located within the areas set forth in Section 18.37A.030 above.
- (b) Campgrounds and associated structures.
- (c) Riding stables and associated structures.
- (d) Gun clubs, shooting ranges.
- (e) Archery ranges.
- (f) Swimming pools and accessory facilities.
- (g) Rest areas.
- (h) Baseball parks and soccer and football fields.
- (i) Access roads and parking areas accessory to the uses established in Section 18.37A.030 above.
- (j) Public utility easements.
- (k) Concession stands.
- (l) Stages and band shells.
- (m) Group or organized camps.
- (n) Private boat launching ramps and related facilities.

Section 18.37A.050. Building Height.

No building or structure shall exceed 18 feet and no more than 1 story.

Section 18.37A.060. Lot Coverage.

Maximum impervious coverages by buildings, roads, and parking areas shall be 20 percent. Additional coverage may be allowed if approved by the Planning Commission.

Section 18.37A.070. Exterior Lighting.

All lighting of buildings, landscaping, parking lots, recreation areas, and similar facilities shall be directed away from all adjoining and nearby residential property, or have fitted similarly effective glare reduction devices. Such lighting shall be arranged and controlled so as not to create a nuisance or hazard to traffic or the residential living environment.

Section 18.37A.080. Parking.

Off-street parking requirements shall be subject to the provisions of Chapter 18.62.

Section 18.37A.090. Signs.

The following requirements are in addition to the requirements in Chapter 16.92.

- (a) Signs shall be stationary and be illuminated from ground level indirect sources only.
- (b) One sign allowed at each principal entrance with maximum sign surface of 45 square feet facing in any one direction.
- (c) The sign material, design, and color shall be harmonious with the unique character of the Open-Space District in which it is located.
- (d) Maximum height shall not exceed ten feet above ground.
- (e) Signs and sign designs which exceed the permitted standards of this section may be permitted upon the securing of a use permit, only when it can be demonstrated that unusual circumstances exist and that such a sign or sign design is in harmony with the area in which it is located and compatible with the surrounding neighborhood.

APPENDIX G
MODEL SURFACE MINING
AND
RECLAMATION ORDINANCE

Appendix

MODEL ORDINANCE FOR COUNTIES AND CITIES
FOR USE IN MEETING MINIMUM STANDARDS
IN COMPLIANCE WITH THE SMARA

AN ORDINANCE OF THE COUNTY (CITY) OF _____, STATE OF CALIFORNIA

The Board of Supervisors (City Council) of the County (City) of _____, State of California, does ordain as follows:

SECTION _____. The _____ County (City) Code is hereby amended by the addition of Chapter _____ to Title _____, Division _____, containing Sections _____ through _____, inclusive, which shall read as follows:

CHAPTER _____
SURFACE MINING AND RECLAMATION

Sections:

- .011 Purpose and Intent
- .012 Definitions
- .013 Scope
- .014 Permit and Reclamation Plan Requirement
- .015 Review Procedure
- .016 Performance Bond
- .017 Public Records
- .018 Periodic Review
- .019 Amendments
- .020 Variance
- .021 Enforcement
- .022 Appeal
- .023 Separability

.011. Purpose and Intent. (a) This ordinance is adopted pursuant to the California Surface Mining and Reclamation Act of 1975, Chapter 9, Public Resources Code.

(b) The Board (Council) hereby finds and declares that the extraction of minerals is essential to the continued economic well-being of the County (City) and to the needs of the society, and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety.

(c) The Board (Council) further finds that the reclamation of mined lands as provided in this ordinance will permit the continued mining of minerals and will provide for the protection and subsequent beneficial use of the mined and reclaimed land.

(d) The Board (Council) further finds that surface mining takes place in diverse areas where the geologic, topographic, climatic, biological, and social conditions are significantly different and that reclamation operations and the specifications therefore may vary accordingly.

.012. Definitions. (a) "Exploration" or "prospecting" means the search for minerals by geological, geo-physical, geochemical or other techniques, including, but not limited to, sampling, assaying, drilling, or any surface or underground works needed to determine the type, extent, or quantity of minerals present.

(b) "Mined Lands": Includes the surface, subsurface, and groundwater of an area in which surface mining operations will be, are being, or have been conducted, including private ways and roads appurtenant to any such area, land excavations, workings, mining waste, and areas in which structures, facilities, equipment, machines, tools, or other materials or property which result from, or are used in, surface mining operations are located.

(c) "Minerals": Any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances, including, but not limited to, coal, peat, and bituminous rock, but excluding geothermal resources, natural gas, and petroleum.

(d) "Mining Waste": Includes the residual of soil, rock, mineral, liquid, vegetation, equipment, machines, tools, or other materials or property directly resulting from, or displaced by, surface mining operations.

(e) "Operator": Any person who is engaged in surface mining operations, himself, or who contracts with others to conduct operations on his behalf.

(f) "Overburden": Soil, rock, or other materials that lie above a natural mineral deposit or in between deposits, before or after their removal, by surface mining operations.

(g) "Permit": Any formal authorization from, or approved by, the County (City), the absence of which would preclude surface mining operations.

(h) "Person": Any individual, firm, association, corporation, organization, or partnership, or any city, county, district, or the state or any department or agency thereof.

(i) "Reclamation": The process of land treatment that minimizes water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations, including adverse surface effects incidental to underground mines, so that mined lands are reclaimed to a usable condition which is readily adaptable for alternate land uses and create no danger to public health or safety. The process may extend to affected lands surrounding mined lands, and may require backfilling, grading, resoil, revegetation, soil compaction, stabilization, or other measures.

(j) "State Board": State Mining and Geology Board, in the Department of Conservation, State of California.

(k) "State Geologist": Individual holding office as structured in Section 677 of Article 3, Chapter 2 of Division 1 of the Public Resources Code.

(1) "Surface Mining Operations": All or any part of the process involved in the mining of minerals on mined lands by removing overburden and mining directly from the mineral deposits, open-pit mining of minerals naturally exposed, mining by the auger method, dredging and quarrying, or surface work incident to an underground mine. Surface mining operations shall include, but are not limited to:

- (1) Inplace distillation, retorting or leaching.
- (2) The production and disposal of mining waste.
- (3) Prospecting and exploratory activities.

.013. Scope. (a) The provisions of this chapter shall apply to the unincorporated areas of _____ County (incorporated areas of the City of _____).

(b) The provisions of this chapter are not applicable to:

(1) Excavations or grading conducted for farming or onsite construction or for the purpose of restoring land following a flood or natural disaster.

(2) Prospecting and exploration for minerals of commercial value where less than 1000 cubic yards of overburden is removed in any one location of one acre or less.

(3) Any surface mining operation that does not involve either the removal of a total of more than 1000

.011. *Purpose and Intent.* (a) This ordinance is adopted pursuant to the California Surface Mining and Reclamation Act of 1975, Chapter 9, Public Resources Code.

(b) The Board (Council) hereby finds and declares that the extraction of minerals is essential to the continued economic well-being of the County (City) and to the needs of the society, and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety.

(c) The Board (Council) further finds that the reclamation of mined lands as provided in this ordinance will permit the continued mining of minerals and will provide for the protection and subsequent beneficial use of the mined and reclaimed land.

(d) The Board (Council) further finds that surface mining takes place in diverse areas where the geologic, topographic, climatic, biological, and social conditions are significantly different and that reclamation operations and the specifications therefore may vary accordingly.

.012. *Definitions.* (a) "Exploration" or "prospecting" means the search for minerals by geological, geo-physical, geochemical or other techniques, including, but not limited to, sampling, assaying, drilling, or any surface or underground works needed to determine the type, extent, or quantity of minerals present.

(b) "Mined Lands": Includes the surface, subsurface, and groundwater of an area in which surface mining operations will be, are being, or have been conducted, including private ways and roads appurtenant to any such area, land excavations, workings, mining waste, and areas in which structures, facilities, equipment, machines, tools, or other materials or property which result from, or are used in, surface mining operations are located.

(c) "Minerals": Any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances, including, but not limited to, coal, peat, and bituminous rock, but excluding geothermal resources, natural gas, and petroleum.

(d) "Mining Waste": Includes the residual of soil, rock, mineral, liquid, vegetation, equipment, machines, tools, or other materials or property directly resulting from, or displaced by, surface mining operations.

(e) "Operator": Any person who is engaged in surface mining operations, himself, or who contracts with others to conduct operations on his behalf.

(f) "Overburden": Soil, rock, or other materials that lie above a natural mineral deposit or in between deposits, before or after their removal, by surface mining operations.

(g) "Permit": Any formal authorization from, or approved by, the County (City), the absence of which would preclude surface mining operations.

(h) "Person": Any individual, firm, association, corporation, organization, or partnership, or any city, county, district, or the state or any department or agency thereof.

(i) "Reclamation": The process of land treatment that minimizes water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations, including adverse surface effects incidental to underground mines, so that mined lands are reclaimed to a usable condition which is readily adaptable for alternate land uses and create no danger to public health or safety. The process may extend to affected lands surrounding mined lands, and may require backfilling, grading, resoilng, revegetation, soil compaction, stabilization, or other measures.

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(l) "Surface Mining Operations": All or any part of the process involved in the mining of minerals on mined lands by removing overburden and mining directly from the mineral deposits, open-pit mining of minerals naturally exposed, mining by the auger method, dredging and quarrying, or surface work incident to an underground mine. Surface mining operations shall include, but are not limited to:

- (1) Inplace distillation, retorting or leaching.
- (2) The production and disposal of mining waste.
- (3) Prospecting and exploratory activities.

.013. *Scope.* (a) The provisions of this chapter shall apply to the unincorporated areas of _____ County (incorporated areas of the City of _____).

(b) The provisions of this chapter are not applicable to:

(1) Excavations or grading conducted for farming or onsite construction or for the purpose of restoring land following a flood or natural disaster.

(2) Prospecting and exploration for minerals of commercial value where less than 1000 cubic yards of overburden is removed in any one location of one acre or less.

(3) Any surface mining operation that does not involve either the removal of a total of more than 1000

cubic yards of minerals, ores, and overburden, or involve more than one acre in any one location.

(4) Surface mining operations that are required by federal law in order to protect a mining claim, if such operations are conducted solely for that purpose.

(5) Such other mining operations that the County (City) determines to be of an infrequent nature, and which involve only minor surface disturbances and are categorically identified (no such identifications made as of the effective date of these regulations) by the State Board pursuant to Sections 2714(d) and 2758(c). California Surface Mining and Reclamation Act of 1975.

.014. Permit and Reclamation Plan Requirement.

(a) Any person, except as provided in Section 2776, California Surface Mining and Reclamation Act of 1975, who proposes to engage in surface mining operations as defined in this chapter shall, prior to the commencement of such operations, obtain (1) a permit to mine, and (2) approval of a reclamation plan, in accordance with the provisions set forth in this chapter and as further provided in Article 5, California Surface Mining and Reclamation Act of 1975. A fee as established for the permitted uses in the County (City) Fee Ordinance, shall be paid to the County (City) of _____, Department of _____ at the time of filing.

All applications for a Reclamation Plan for surface mining operations shall be made on forms provided by the _____ office of the County (City) Planning (and/or other) Department, and as called for by Section 2772 of California Surface Mining and Reclamation Act of 1975.

(b) No person who has obtained a vested right to conduct a surface mining operation prior to January 1, 1976, shall be required to secure a permit pursuant to the provisions of this chapter as long as such vested right continues, provided that no substantial change is made in that operation except in accordance with the provisions of this chapter. A person shall be deemed to have such vested rights if, prior to January 1, 1976, he has in good faith and in reliance upon a permit or other authorization, if such permit or other authorization was required, diligently commenced surface mining operations and incurred substantial liabilities for work and materials necessary therefor. Expenses incurred in obtaining the enactment of an ordinance in relation to a particular operation or the issuance of a permit shall not be deemed liabilities for work or materials.

A person who has obtained a vested right to conduct surface mining operations prior to January 1, 1976 shall submit to the County (City) Planning Department and receive, within a period of _____ months ("a reasonable period of time"), approval of a Reclamation Plan for operations to be conducted after January 1, 1976, unless a Reclamation Plan was approved by the County

(City) of _____ prior to January 1, 1976, and the person submitting that plan has accepted responsibility for reclaiming the mined lands in accordance with that plan. Nothing in this ordinance shall be construed as requiring the filing of a reclamation plan for, or the reclamation of, mined lands on which surface mining operations were conducted prior to, but not after, January 1, 1976.

(c) The State Geologist shall be notified of the filing of all permit applications.

(d) This ordinance shall be continuously reviewed and revised, as necessary, in order to ensure that it is in accordance with the state policy for mined lands reclamation.

.015. Review Procedure. The Planning Department shall review the permit application and the Reclamation Plan and shall schedule a public hearing within _____ days of the filing of both the permit application and the Reclamation Plan. Such public hearing shall be held by the Planning Agency for the purpose of consideration of the issuance of a permit for the proposed surface mining operation.

.016. Performance Bond. Upon a finding by the Planning Agency that a supplemental guarantee for the reclamation of the mined land is necessary, and upon the determination by the Planning Department of the cost of the reclamation of the mined land according to the Reclamation Plan, a surety bond, lien, or other security guarantee conditioned upon the faithful performance of the Reclamation Plan shall be filed with the Planning Department. Such surety shall be executed in favor of the County (City) of _____ and reviewed and revised, as necessary, biannually. Such surety shall be maintained in an amount equal to the cost of completing the remaining reclamation of the site as prescribed in the approved or amended Reclamation Plan during the succeeding two-year period, or other reasonable term.

.017. Public Records. Reclamation Plans, reports, applications, and other documents submitted pursuant to this chapter are public records unless it can be demonstrated to the satisfaction of the County (City) that the release of such information, or part thereof, would reveal production, reserves, or rate of depletion entitled to protection as proprietary information. The County (City) shall identify such proprietary information as a separate part of each application. A copy of all Permits, Reclamation Plans, reports, applications, and other documents submitted pursuant to this chapter, including proprietary information, shall be furnished to the District Geologist of the State Division of Mines [and Geology] by the County (City) of _____.

Proprietary information shall be made available to persons other than the State Geologist only when authorized by the mine operator and by the mine owner in accordance with Section 2778, California Surface Mining and Reclamation Act of 1975.

.018. *Periodic Review.* As a condition of approval for the Permit or the Reclamation Plan, or both, a schedule for periodic inspections of the site shall be established to evaluate continuing compliance with the Permit and the Reclamation Plan.

.019. *Amendments.* Amendments to an approved Reclamation Plan may be submitted to the County (City) at any time, detailing proposed changes from the original plan. Substantial deviations from the original plan shall not be undertaken until such amendment has been filed with, and approved by, the County (City).

Amendments to an approved Reclamation Plan shall be approved by the same procedure as is prescribed for approval of a Reclamation Plan.

.020. *Variance.* Variances from an approved Reclamation Plan may be allowed upon request of the operator and applicant, if they are not one and the same, and upon a finding by the Planning Agency that each requested

variance is necessary to achieve the prescribed or higher post-mining use of the reclaimed land.

.021. *Enforcement.* The provisions of this chapter shall be enforced by any authorized member of the Planning Department of the County (City) of _____ or such other persons as may be designated by the Board (Council).

.022. *Appeal.* Any person aggrieved by an act or determination of the Planning Department administrator in the exercise of the authority granted herein shall have the right to appeal to the Planning Agency and the Board of Supervisors (City Council). Any appeal must be filed on forms provided within _____ days after the rendition, in writing, of the decision.

.023. *Separability.* If any section, subsection, sentence, clause, or phrase of this chapter is for any reason held to be invalid or unconstitutional by the decision of a court of competent jurisdiction, it shall not affect the remaining portions of this chapter.

APPENDIX H

MODEL HILLSIDE ORDINANCE

SECTIONS:

Short Title

Purpose

Definitions

Scope and Application

Density

Development Standards

Review and Approval Procedure

Penalty

Effective Date

MODEL HILLSIDE ORDINANCE

Short Title

This Ordinance may be referred to and designated as the "Hillside Ordinance".

Purpose

The City Council of _____ in order to preserve the peace, health, safety and welfare and promote the best interests of the inhabitants of _____ deems that this Hillside Ordinance be enacted. The Ordinance shall provide standards, guidelines and criteria, having the effect of minimizing flooding, erosion and other environmental hazards and protecting the natural scenic character of the hillside areas and ensuring the efficient expenditure of public funds.

The standards, guidelines and criteria to be achieved by this ordinance shall include, but shall not be limited to, the following:

(a) The protection of public from natural hazards of storm water runoff and erosion by requiring drainage facilities and the minimal removal of natural vegetation.

(b) The minimization of the threat and consequential damages of fire in hillside areas by establishing fire protection measures.

(c) The preservation of natural features, wildlife habitat and open space.

(d) The preservation of public access to mountain areas and natural drainage channels.

(e) The retention of natural topographic features such as drainage channels, streams, ridge lines, rock outcroppings, vistas, trees and other natural plant formations.

(f) The preservation and enhancement of visual and environmental quality by use of natural vegetation and the prohibition of excessive excavation and terracing.

(g) The assurance of an adequate transportation system for the total hillside area to include consideration of the approved master street plan of the City. This system design will consider densities and topography with minimal cuts, fills or other visible scars.

(h) The establishment of onsite and offsite traffic facilities that ensure ingress and egress for vehicles including emergency vehicles into all developed areas at any time.

(i) The encouragement of a variety of development designs and concepts that are compatible with the natural terrain of the hillside areas and will preserve open space and natural landscape.

(j) The establishment of land use management criteria that will encourage protection of natural elements while allowing a harmonious and satisfying residential environment.

(k) The encouragement of location, design and development of building sites to provide maximum safety and human enjoyment while adapting the development to the best use of the natural terrain.

(l) The encouragement of the use of creative design teams composed of professional landscape architects, engineers, and others.

(m) The encouragement of a regard for the view of the hillsides as well as a view from the hillsides.

Definitions

As used in this Chapter:

(a) "Average Slope" shall mean and be determined by the use of the following formula:

$$S = \frac{.00229}{A} (I) (L)$$

S = Average slope of the site before development or construction.

.00229 = The conversion factor of square feet to acres.

A = Total number of acres in the Slope District

L = Summation of the length of all contour lines in feet.

I = Contour interval in feet.

In the determination of the average slope of a development site, the area (A) shall not include the area of lands having a greater slope than twenty percent (20%). If such areas are excluded, their acreage shall not be included as part of the total area of the development site for purposes of determining the number of dwelling units allowed, but may be included with individual building lots.

(b) (1) "Slope District" shall mean an area of at least five acres in development sites greater than ten acres and an area of at least one acre in development sites of less than ten acres and the following average slope percentages shall apply:

(A)	0	-10.0
(B)	10.1	-20.0
(C)	20.1	-30.0
(D)	30.1+	

(2) The term "Slope District" shall describe areas within a development site, (or the entire development site if it qualifies under the

definition) which are distinguishable as an area of consistent topography. The areas of consistent topography shall be bounded by topographic differences. Topographic differences shall be defined as the differences in the land formations that may occur when a valley or ridge bisects the development site or when a hillside contains portions of land that form a plateau or land that protrudes significantly from what would be considered a uniform slope condition.

(3) Slope districts of over ___ may be:

(A) Placed in permanent open space and maintained by a responsible legal entity; or

(B) Platted with adjacent approved building lots with an open space easement; or

(C) Other proposals may be prepared by the developer and submitted for approval of the Planning Commission.

(c) The words "Development Site" shall mean and include the total perimeters of:

(1) A Subdivision, as defined elsewhere in the ordinances of

(2) A Cluster Subdivision, as defined elsewhere in the ordinances of

(3) A Planned Residential Unit Development, as defined elsewhere in the ordinances of

(4) A Tract, lot or parcel of land intended to be used as a commercial, public, quasi-public, utility or other building site.

(d) The words "natural vegetation" shall include, but not be limited to: orchards, trees, shrubs, lawn, grass and perennial growth.

(e) The words "institutional buildings" shall include, but not be limited to: churches, schools, hospitals, public and quasi-public buildings.

(f) The words "impervious materials" shall mean matter that is impenetrable by moisture.

(g) The words "gross acreage" shall mean the total area of the development, including all rights and other nonresidential uses.

(h) The words "net residential acreage" shall mean all land within a development site devoted exclusively to a residential use.

(i) The words "useable land" shall mean that contiguous parcel of land included within the lot, no part of which has a slope exceeding twenty percent (20%).

(j) The words "open space" shall mean that land designated and approved as open space on the development site plan.

Scope and Application

(a) The provisions of this Chapter shall apply to all lands in the City which lie within the area designated as the Hillside and Slope Protections Overlay Zone". Said map is attached hereto and incorporated herein by reference.

(b) This Chapter makes additional provision to those set forth elsewhere in Title _____ of the Revised Ordinances of _____ as amended. In the event of conflict between such additional provision and the provisions of this Chapter, the more restrictive provisions shall apply.

(c) The provisions of this ordinance shall have no application to any development of other construction project which has been granted preliminary approval prior to the effective date of this ordinance.

Density, Lot Size, Width, and Characteristics

(a) The Planning Commission shall approve the overall density of any development site based on the site plans as provided for in this Chapter.

(b) Single Family Dwelling Units.

(1) Single Family Detached Subdivision. The maximum density with respect to single family dwelling units per gross acre shall be determined by reference to the following table and the density restrictions of the underlying zone, whichever designation is the most restrictive:

<u>Slope District Average Slope</u>	<u>Maximum Density Dwelling Lots/Gross Acre</u>
0 - 10.0	Gross Acreage of Underlying Zone
10.1 - 20.0	
20.1	
30.1+	None Allowed

(2) Planned Development. The maximum density with respect to dwelling units per gross acre for single family dwelling units in a Planned Residential Unit Development or Cluster Subdivision shall be determined by reference to the following table and an appropriate residential zone:

<u>Slope District</u>	<u>Average Slope</u>	<u>Maximum Density</u>	<u>Dwelling Lots/Gross Acre</u>
0 - 10.0		To be determined	
10.1 - 20.0		"	"
20.1 - 30.0		"	"
30.1+		None Allowed	

(3) When lot lines cross slope district boundaries, the lot size will be determined by the average slope of the useable land, within the building lot. The Planning Commission may require larger lots than the minimum as set forth elsewhere herein, depending upon the natural conditions of the site, to assure each lot contains a suitable building site.

(4) Maximum Impervious Material Coverage. The maximum impervious material coverage that shall be allowed upon lots upon which single family dwelling units are located shall be twenty percent (20%) of the total lot area or five thousand (5,000) square feet, whichever amount is smaller, including accessory buildings, patios, and driveways; provided however, that the maximum impervious material coverage may exceed thirty percent (30%) or five thousand square feet upon approval of the City Council after review and recommendation by the Planning Commission.

(5) Useable Area

(A) Single family dwelling structures shall be located only upon areas constituting useable land, which area shall be fully contiguous and shall be at least five thousand (5,000) square feet in size, and shall have a minimum dimension, either length or width, of fifty feet (50').

(B) Single family dwelling structures shall be set back no further than two hundred fifty feet (250') from a public or private street.

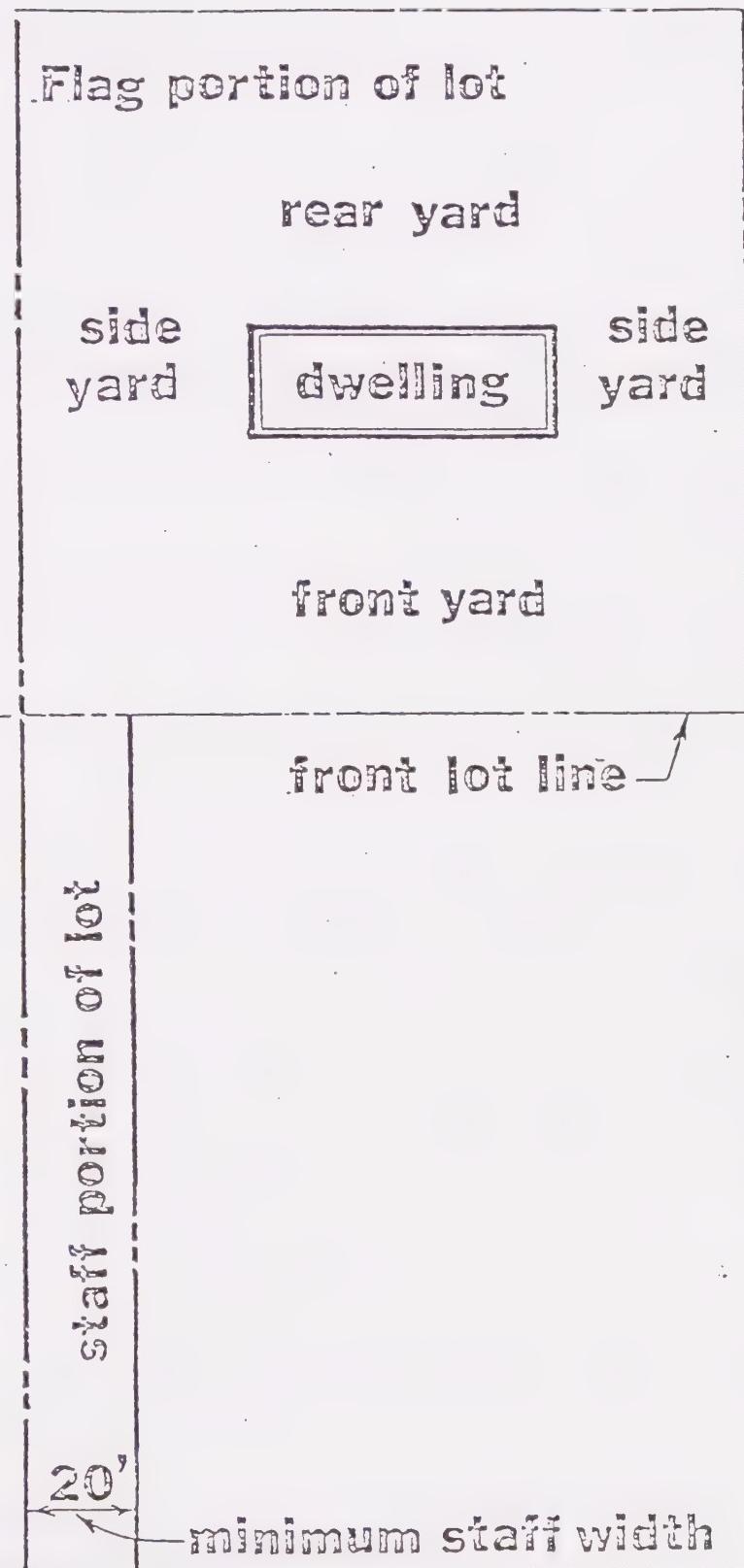
(C) All accessory structures shall be located upon useable land.

(6) Flag Lots - Dimensions. In order to encourage the more efficient use of land, flag or L-shaped lots may be allowed subject to the following conditions:

(A) A flag or L-shaped lot shall be comprised of a staff portion contiguous with the flag portion thereof.

(B) The staff portion of said lot shall front on and be contiguous to a dedicated public street or private street.

FIGURE #1.



EXAMPLE:

By way of example only,
a flag or L shaped lot is
illustrated as indicated

STREET

(1) Useable Area. Multiple Dwelling Units shall be located only upon areas constituting useable land. The amount of impervious surface, the amount and location of useable area, and distance from streets shall be considered in the site plan.

(d) Other Buildings. Commercial, institutional, utility and accessory buildings shall be located only upon useable land.

Development Standards.

(a) Scope.^t It is intended by this Section that the development standards and provisions, as set forth herein, shall be required in connection with all building and construction in the Sandy City Foothill and Slope Protection Overlay Zone.

(b) Drainage and Erosion. The area of the watershed shall be used to determine the amount of storm water runoff generated before and after construction.

(1) The "Rational Method" or other method as approved by the City Engineer shall be used in computing runoff. The basic formula for the "Rational Method" is:

$Q = CIA$ in which:

Q = Runoff in cubic feet per second (c.f.s.)

C = Coefficient of runoff or the portion of storm water that runs off a given area.

The following ranges for C value are typical examples. The actual C value used shall be approved by the City Engineer.

<u>Type of Development</u>	<u>Runoff Coefficient</u>
Industrial & Commercial	.80 - .90
Residential	.30 - .40
Parks	.15 .25
Agricultural	.10 - .20

I = Average rainfall intensity during time of concentration for 25 year return period in inches per hour. The time of concentration shall be defined as the time required for water to flow from the most remote point of the section under consideration.

A = Drainage area in acres.

(2) Lots shall be arranged so as to insure adequate setbacks from drainage channels. The 100 year storm shall be that basis for calculating setbacks. No structures shall be allowed in the 100 year flood plain as defined by the latest F.E.M.A. Maps.

(3) Facilities for the collection of storm water runoff shall be required to be constructed on development sites and according to the following requirements.

(A) Such facilities shall be the first improvement or facilities constructed on the development site.

(B) Such facilities shall be designed so as to detain safely and adequately the maximum expected storm water runoff for a twenty-five year storm, not to exceed .2 cubic feet per second per acre or at a flow rate higher than the flow rate before construction, whichever is less, on the development site, for a sufficient length of time so as to prevent flooding and erosion during storm water runoff flow periods.

(C) Such facilities shall be so designed as to divert surface water away from cut faces or sloping surfaces of a fill.

(D) The existing natural drainage system will be utilized, as much as possible, in its unimproved state.

(E) Where drainage channels are required, wide shallow swales lined with appropriate vegetation shall be used instead of cutting narrow, deep drainage ditches.

(F) Flow retarding devices, such as detention ponds and recharge berms, shall be used where practical to minimize increases in runoff volume and peak flow rate due to development. Areas which have shallow or perched groundwater or areas that are unstable must be given additional consideration.

(5) Construction on the development site shall be of a nature that will minimize the disturbance of vegetation cover.

(6) Erosion control measures on the development site shall be required to minimize the increased solids loading in runoff from such areas. The detailed design system to control storm water erosion during and after construction shall be contained in the Grading and Drainage Report described in Section 15-9-7 (e) (4).

(c) Vegetation and Revegetation.

(1) All areas on development sites cleared of natural vegetation in the course of construction of offside improvements shall be replanted with re-vegetation which has good erosion control characteristics.

(2) New plantings shall be protected with mulch material and fertilized when in conjunction with the planting and watering schedule in Section 6 (c) (5).

(3) The use of persons or firms having expertise in the practice of re-vegetation (i.e. licensed landscape architects or nurserymen) shall supervise the planning and installation of

revegetation cover.

(4) Vegetation shall be removed only when absolutely necessary, e.g., for the construction of buildings, roads and filled areas.

(5) After the completion of off-site improvements vegetation shall be planted in all disturbed areas only during the following time periods.

(A) March 15 through May 15; and
(B) September 15 through October 31.
(C) If irrigated, planting may be done during summer months.

(D) Such vegetation shall be a mixture of plant materials, i.e., trees, shrubs, grass, and forbs. Native plant materials will be preferred.

(6) No vegetation shall be removed on slopes over twenty percent (20%) except as approved by the Planning Commission for trail and/or open space improvements.

(7) Topsoil removed during construction shall be conserved for later use on areas requiring vegetation or landscaping i.e., cut and fill slopes.

(8) All disturbed soil surfaces shall be stabilized or covered prior to the first day of November. If the planned impervious surfaces (i.e., road, driveways, etc.) cannot be established prior to November 1st, a temporary treatment adequate to prevent erosion shall be installed on those surfaces.

(9) The property owner and/or developer shall be fully responsible for any destruction of native or applied vegetation identified as necessary for retention and shall be responsible for such destroyed vegetation. They shall carry the responsibility both for employees and subcontractors from the first day of construction until the completion of offsite improvements. The property owner and developer shall replace all destroyed vegetation with varieties of vegetation approved by the Planning Commission. The property owner shall assume liability upon purchase of the lot.

(d) Geology.

(1) No structures shall be built on any zones of deformation with respect to active faults. Offsite improvement design will be approved by the Planning Commission.

(2) No structures or offsite improvements shall be allowed on any active landslide area.

(3) Problems associated with development on or near perched ground water and shallow ground water must be mitigated in a manner as approved by the Planning Commission.

(4) No structures shall be allowed in any rockfall

zone. Offsite improvements may be allowed through special approval by the Planning Commission.

(e) Fire Protection.

(1) Areas without a recognized water supply shall meet special requirements, on an individual basis, as established by the Planning Commission.

(2) Each development site and building permit for private lots, flag lots, and lots where the front setback is greater than fifty feet (50'), shall be reviewed by the City Fire Department to see that it complies with the Uniform Fire Code, Section 13.208 Access Roadways for Fire Apparatus.

(f) Grading, Cuts and Fill.

(1) Exposed unstable surfaces of an excavation or fill shall not be steeper than one vertical to two horizontal.

(2) All permanent fill shall be located so that settlements, slidings, or erosions shall not damage or cover streets, curb, gutter, sidewalks or building.

(3) All fill and degrees of compaction shall comply with the standards of the Uniform Building Code.

(4) The top and bottom edges of slopes caused by an excavation or fill up to ten vertical feet (10') shall be at three horizontal feet (3') from the property line or public right-of-way lines.

(5) The maximum vertical height of all cuts or fills shall be ten feet (10'). Fills for slumps or other natural depressions may exceed ten feet (10') if approved by the Planning Commission.

(6) All structures, except retaining walls or soil stabilization improvements, shall have a setback from the crest of the fill or base of the cut of a minimum distance equal to the depth of the fill or the height of the cut, unless a structurally sound retaining wall is built for the cut or fill slope. Retaining walls may be a part of the dwelling unit.

(g) Streets and Ways. Streets, roadways and private access ways shall follow as nearly as possible the natural terrain. The following additional standards shall apply:

(1) At least two ingress and egress routes shall be provided for each subdivision or PRUD project.

(2) Points of access shall be provided to all developed and nondeveloped areas for emergency and fire fighting equipment. Driveways located upon each lot extending from a public or private street shall have a maximum grade of twelve.

percent (12%), and shall be of a sufficient width and design to administer and accommodate fire fighting equipment.

(3) Cul-de-sacs shall not exceed 600 feet in length and shall have a turnaround with a radius of at least 55 feet, Stub-streets that are longer than the width or length of any adjacent single lot or 200 feet, whichever is less, shall have a temporary turnaround at the end thereof.

(4) Centerline curvatures shall not be less than 100 feet radius on any curved street pattern.

(5) Variations of the street design standards developed to solve special hillside visual and functional problems may be presented to the Planning Commission for consideration and approval. Examples of such variations may be the use of split roadways to avoid deep cuts, one way streets, modifications of surface drainage treatments or sidewalk design.

(6) Development sites which are located near canyon trails will provide access to those trails. Parking areas may be required by the Planning Commission at trail heads.

(7) The maximum amount of impervious surface for streets and ways shall be twenty percent (20%) of the entire development site.

(8) All streets or rights-of-way for vehicular traffic shall be subject to the following limitations.

(A) The maximum grade of such streets or rights-of-way shall be twelve percent (12%) except as hereafter provided.

(B) The City Council, after receiving a recommendation from the Planning Commission, may grant approval for the construction of such streets or rights-of-way having a grade exceeding twelve percent (12%), but the grade of such streets shall not, in any event, exceed fifteen percent (15%) for public streets and shall not exceed the grade recommended by the City Engineer for private streets.

(C) The provisions of this Subsection (7) shall not apply to streets or rights-of-way already constructed or which have heretofore been granted preliminary approval by the Planning Commission.

(D) Roads shall be designed to meet the City road base, asphalt, and compaction standards.

(h) Architectural Design.

(1) Buildings proposed for construction in the ~~City~~ Hillside Zone shall be designed to be visually compatible with the natural beauty of the hillsides and canyon areas. The use of building materials in colors that will blend harmoniously with the natural settings are encouraged. Such materials as natural woods,

brick (earth colors) and stone are considered to be most appropriate.

(2) The Planning Commission shall review the design and specified exterior materials and colors for all structures other than single family dwellings. Building permits for such structures shall not be granted until building materials and colors have been approved by the Planning Commission.

(3) Innovative designs for single family dwelling units, e.g., basement dwellings with grass roofs, etc., may be allowed after approval by the Planning Commission.

(i) On Site Development. The property owner shall be fully responsible for making all improvements in accordance with the development site approval, e.g., drainage, erosion, and vegetation constraints.

(j) Bond. In addition to the provisions requiring the posting of a bond as set forth elsewhere in the ordinances of Sandy City, the property owner may be required by the City Council to guarantee the completion of revegetation projects, the stabilization of grading sites, cuts and fill and construction of storm water runoff facilities, the construction of recreation centers as required in this Section. If such additional bond is required, it shall be in an amount equal to the cost of construction of such projects and shall continue for one (1) year after the completion date of such projects, improvements or facilities.

(k) Exceptions. Exceptions to the requirements and provisions as outlined in this Section may be approved by the City Council, provided that the developer or owner of such development site can demonstrate to the satisfaction of the City Council that the requested exceptions shall not be detrimental or injurious to the property or improvements adjacent thereto, nor detrimental to the general well being of the neighborhood nor in violation of the stated purposes of this Chapter.

Review and Approval Procedure.

(a) Review Process Standards. When application is considered as required in this Section the procedural steps must be followed as outlined herein. As each application is reviewed by the Planning Commission, City Council or their authorized representative, the findings of fact shall be listed and included in all application approvals or denials. The decision along with the findings of fact shall be forwarded to the applicant within fifteen (15) days of any action.

(b) Approval by City Council.

(1) Before a Planned Residential Unit Development, a Cluster Subdivision, a Subdivision, or a Commercial Development is allowed within the Hillside Zone, approval must be first granted by the City Council as provided in this Section.

(2) Before construction of a single-family dwelling on an individual lot not included as part of a development site shall be allowed, approval must first be granted by the Planning Commission, in compliance with this Section, provided that the application shall contain information, plans and reports as are required by the Planning Commission.

(c) Application to Planning Commission. All applications as required in this Section, shall first be submitted to the Planning Commission for their consideration and recommendations. All site plans and/or reports as required in this Section shall be drawn to scale, not less than 1" = 100'. With respect to site plans and/or reports drawn to scale of 1" - 50', said site plans and/or reports shall show topographical contours at two foot intervals. With respect to site plans and/or reports having a scale of less than 1" = 100', the site plans and/or reports shall show topographic contours at five foot intervals.

(d) Engineering Calculations Made Available to City. All engineering calculations performed and acquired pursuant to the provisions of the ordinances of _____ shall be made available to the Engineer as a part of the review and approval process. The Engineer shall then have access to the said engineering calculations in order to better advise the Planning Commission and Council with regard to further review and approval of a proposed development.

(e) Application for Conceptual Approval.

(1) Planned Residential Unit Developments. All applications for approval of a Planned Residential Unit Development shall comply with the provisions of the ordinances of _____. In addition, conceptual approval must first be granted prior to application for preliminary approval.

(2) Subdivisions. All applications for approval of a subdivision shall comply with the provision of the ordinances of _____. In addition, conceptual approval must first be granted prior to application for preliminary approval. All applications for conceptual approval shall be accompanied by a site plan drawn to scale.

(3) Commercial Developments. All applications for commercial developments shall comply with the provisions of ordinances of _____. Conceptual approval must first be granted prior to application for preliminary approval. An application for such approval shall be accompanied by a site plan drawn to scale by a registered architect or engineer licensed to practice in the State of _____.

(4) Site Plans. Site plans shall include, in addition to the above provisions, the following:

(A) Location of the proposed Planned Residential Unit Development, Subdivision, Cluster Subdivision, or Commercial

(f) Preliminary Approval. In addition to the information as required for preliminary approval for Planned Residential Unit Developments, Cluster Subdivisions, Subdivisions, or Commercial Developments, in accordance with the ordinances of _____ as the case may be, such additional information as set forth in this sub-section may be required. All reports as submitted herein shall be prepared by persons or firms, licensed to practice their specialty or expertise in the _____ if such license for practice is required, or by one having demonstrable expertise in such field of practice.

(1) Soil Characteristics Report. Data regarding the nature, distribution, and strength of soils within the project area; the soil report shall include:

(A) Unified classification of all soils with an estimate of susceptibility to erosion, plasticity index, liquid limit, shrink-swell potential, and general suitability for development.

(B) Estimate of the normal highest elevation of the seasonal high water table.

(C) Flood history and potential; proximity to known Flood Plain Areas and Drainage Channels.

(D) Topographic contours.

(2) Vegetation Report. An application shall include a slope stabilization and revegetation report which shall include:

(A) Location and identification (by species) of existing vegetation.

(B) The vegetation to be removed and the method of disposal.

(C) The vegetation to be planted.

(D) Slope stabilization measures to be installed.

(E) Analysis of the environmental effects of such operations including effects on slope stability, soil erosion, water quality, fish and wildlife, and fire hazard.

(F) Topsoil stockpile areas will be designated.

(G) Solar orientation is recommended for review.

(3) Geologic Conditions Report. An application shall include the following information:

(A) Definition of any zones of deformation with respect to active faults and other mass movements of soil and rock.

(B) Identification of anomalies of the terrain of characteristics of the geological materials which would have any potential impact upon the use of the site.

(C) Determination of ground water characteristics.

(D) Depth to bedrock and geological evaluation.

(E) Written recommendations for construction of proposed improvements to avoid impact of any potential geologic hazards.

(4) Grading and Drainage Report. The application for preliminary approval shall include a storm water management and erosion and grading plan on the methods by which surface water, natural drainages, flooding, erosion and sedimentation loss will be accommodated during and after construction. The plan shall include the following information:

(A) Grading Plan: The grading plan shall show present topography to include elevations, lines and grades including the location and depth of all proposed fills and cuts of the finished earth surfaces using a contour interval of two feet or less. Access or haul road location, treatment and maintenance requirements shall be included.

(B) Scale: An appropriate scale shall be used which most clearly presents the proposed action, generally 1" = 100' or larger.

(C) Cleared Area: The proposed area to be graded shall be clearly delineated on the plan and the area amount stated in square feet.

(D) Calculations and Details: All calculations and proposed details used for design and construction (of debris basins, impoundments, diversions, dikes, waterways, drains, culverts and any other water management or soil erosion control measures) shall be shown.

Calculations shall employ predictions of soil loss from sheet erosion using the Universal Soil Loss Equation or appropriate equivalent. Equations should include factors of:

- (i) rainfall intensity and energy
- (ii) soil erodibility
- (iii) land slope and length of slope or topography
- (iv) condition of the soil surface and land management practices in use
- (v) surface cover; grass, woodland, crops, pavement, etc.

(g) Final Approval.

(1) The final application filed with the Planning Commission shall be an application for final approval. Such application shall include the information required and shall be considered in the manner established by the provisions of the ordinances of Sandy City as they pertain to the proposed development.

(2) Application for final approval shall include with the improvements drawings spot elevations on all lot corners or contour grading plans of all lot frontages. The scale will be the same as the improvement drawings.

(h) Construction, Grading and Contour Map and Issuance of Building Permits. There shall be no construction, development or grading upon the development site until final approval has been granted, as provided in this Section. Before the construction of single family dwelling units upon lots shall be allowed, a plot plan drawn to a scale (at least 1 inch = 10 feet) for such lots shall be submitted to the Planning Commission or the designated representative, which plot plan shall show lot lines, existing and proposed contours at two foot intervals, location of proposed single family dwelling unit, walks, driveways, patio areas. The plot plan will also show vegetative, drainage, and erosion controls and such plot plan shall be attached to the building permit.

Penalty

Any person, firm or corporation violating any provisions of the Chapter shall be deemed guilty of a misdemeanor.

Effective Date

In the opinion of the City Council, it is necessary to the peace, health, and safety of the inhabitants of _____ that this Ordinance take effect at once upon its first publication.

Passed by the City Council of _____ this _____
day of _____.

APPENDIX I

MODEL SCENIC RIVER ORDINANCE

May 17, 1985

18.25.000 "SR" SCENIC RIVER COMBINING DISTRICT

18.25.010 PURPOSE

- A. The purpose of this district is to establish regulations that will protect the public interest in the scenic values of the Sacramento River and its related water bodies which rise or fall with the level of the River, its banks, and the visual relationship between the River and adjacent properties and streets.
- B. To promote development designed to establish an open character with buildings well spaced and oriented with respect to views both to and from the River and to promote pedestrian access to and along the River on both public and private property.
- C. To meet the goals and policies of the Redding General Plan.
- D. To recognize the importance of the River as the key feature of the City.
- E. To promote sound land-use development.
- F. To create, in the heart of the City, a strong activity center and focal point for residents and nonresidents. The replacement of older structures that are not designed to use the land in an efficient or attractive manner is encouraged.
- G. To preserve property values.

18.25.020 DEFINITIONS

Design Review.

The mandatory submission of a site or building design for review by a design review body constituted to approve, conditionally approve, or deny a design.

Design Standards.

A set of guidelines defining parameters to be followed in the design of a building or development.

Architectural Review Committee.

A board of City residents who are charged by local ordinance with the review of building plans and other stipulated documents for the purpose of controlling inappropriate design which may have a negative effect on property values or damage the community's appearance within.

Architectural Standards.

Regulations designed to be used in conjunction with zoning that control the architectural design of buildings or structures. Architectural standards regulate such building elements as facades, roof lines, door and window locations, etc.

18.25.030 GENERALLY

The "SR" District shall be subject to the provisions of Chapter 18.50 through 18.62, as well as to all other provisions of this title not in conflict with the specific provisions applicable to the district. Where a conflict between districts occurs, the more restrictive requirement will apply.

18.25.040 ALLOWED USES

Allowed uses shall be determined by the principal zoning district with which the "SR" District is combined, provided that all uses shall be located within a building excluding the following:

1. Recreational uses.
2. Sales of flowers, artwork, or crafts which do not involve permanent stands or displays and which are moved within a building each night upon closing or removed from the property.
3. Sales of food or beverage in conjunction with, but outside of, an adjacent restaurant or food walk-up.

18.25.050 USES PROHIBITED

Uses specifically prohibited include those uses listed in sections:

1. 18.24.040 (B) of the City Code with the exception of restaurants, theaters, "on sale" establishments where liquor is served, and specified outdoor sales in 18.25.040.

2. 18.20.040 (A) and (D).
3. Uses not otherwise allowed in a principal zoning district.
4. Construction of any buildings or structures within the 100-year floodway.
5. Roof signs and projecting signs.

18.25.060 APPLICABILITY

The "SR" Combining District applies to all lands which are zoned "SR."

18.25.070 PERMITS REQUIRED

All construction, exterior renovation, exterior repair, fill or grading, or other related activities, whether permitted or conditionally permitted uses, shall require a conditional use permit in accordance with the provisions of 18.70 of this code and this chapter.

18.25.080 BUILDING HEIGHT

- A. The maximum building height for "C-O," "C-1," or "C-2" Districts shall not exceed 40 feet or three stories above ground level for a main structure, whichever is more restrictive, or 15 feet for an accessory structure, provided that additional height may be permitted, except within 50 feet of the top of the bank subject to obtaining a use permit. Within residential districts, the maximum building height shall not exceed two stories or 30 feet, whichever is more restrictive.
- B. When considering a use permit to exceed the 40-foot height limit in a "C-O," "C-1," or "C-2" District, the Planning Commission shall make a finding that the objective of protecting the scenic quality and public view of the River and its environs is enhanced and that additional building height is compensated by reduced ground floor area, greater setback from any water feature, or a wider visual corridor.

18.25.090 BUILDING SETBACKS

- A. All buildings shall be set back a minimum of 20 feet from any public street.
- B. On all parcels adjacent to the Sacramento River, all buildings shall be set back a minimum distance from the top of the bank as follows:
 - a. One-story buildings not exceeding 20 feet-30 feet.
 - b. Two-story buildings not exceeding 30 feet-40 feet.
 - c. Three-story buildings not exceeding 40 feet 0 feet.
- C. Minimum setbacks from side property lines shall be as follows:
 - a. One-story buildings, a minimum of 5 feet.
 - b. Two-story buildings, a minimum of 10 feet.
 - c. Three-story buildings, a minimum of 15 feet.
- D. Buildings shall not project into or over water-surface areas such as lagoons and lakes subject to flooding from a 100-year flood.

18.25.100 VISUAL CORRIDORS

- A. All building sites within the "SR" District shall be developed in a manner which provides visual corridors through the site to the water area consisting of clear corridors amounting to one-fourth of the width of the property. Where side-yard setbacks do not provide sufficient width to meet this requirement, internal corridors or greater side-yard setbacks shall also be used.
- B. Where a parcel is immediately adjacent to the Sacramento River, a minimum one-fourth of any building-site width shall be maintained in whole, in an open-view corridor with no buildings or other site-obscuring appurtenances excluding landscaping. In these situations, side-yard setbacks may be reduced by one-third the distance stipulated in Section 18.25.090 (C).

- C. No main building shall be located closer to another main building on the same parcel than the following minimum distances:
1. Between one-story buildings, 10 feet.
 2. Between one- and two-story buildings, 20 feet.
 3. Between two-story buildings, 25 feet.
 4. Distances between buildings greater than two stories in height shall be equal to the average height of the two buildings as measured at their highest point above grade.

18.25.110 AREA AND FRONTAGE

- A. For an interior lot, there shall be a minimum area of 10,000 square feet and a minimum frontage on a dedicated public street of 70 feet, provided that where a lot fronts on a cul-de-sac, a minimum frontage of 50 feet shall be permitted if the average lot width is 70 feet as measured at a point 20 feet back from the property line; or a flag lot may be approved with 25 feet of frontage on a public street, provided that the usable area of the parcel conforms to the minimum width requirements.
- B. For a corner lot, there shall be a minimum lot area of 10,000 square feet and there shall be a minimum frontage on a dedicated public street of at least 80 feet.
- C. Lots of less area and width may be allowed within an approved planned development or condominium, provided that the minimum area and open-space requirements of the planned development or condominium ordinances are met.
- D. Portions of lots in 100-year flood-plain areas shall not be used to calculate minimum parcel size or width.

18.25.120 PARKING AND DRIVEWAY CUTS

- A. Off-street parking lots of five or more spaces shall not be permitted within 10 feet of any street property line nor within 30 feet of the top of the bank of the Sacramento River or edge of flood fringe, whichever is more restrictive.

B. Off-street parking adjacent to lakes or lagoons shall be set back from top of bank a minimum of ten feet.

18.25.130 LANDSCAPING AND WALKWAYS

- A. Twenty percent of the gross building site shall be landscaped, including a minimum ten-foot-wide planter along Park Marina Drive, planting along the River bank designed to minimize erosion, and shade trees in parking areas.
- B. On all properties abutting the River, a minimum 8-foot-wide concrete walkway shall be constructed within 20 feet of the top of the bank. Said walkway shall be designed for public access to and public view of the River and shall run the entire width of the property adjacent to the water area. Between the walkway and the top of bank, a decorative three-foot-high safety fence is to be installed. Prior to issuance of a building permit, a walkway easement covering the walkway and three feet on either side shall be deeded to the City.
- C. On all properties abutting lakes, lagoons, or other backwater, a five-foot-wide walkway shall be constructed five feet back of the top of the bank.

18.25.140 SIGNS

Regardless of the amount of available sign area, all businesses shall be allowed a maximum of 25 square feet of signage; however, the total for all businesses or tenants shall not exceed the total sign area allowed for the parcel. Signs shall be general identification signs designating only the name, address, and/or the nature of the business. Signs mounted on buildings shall be mounted flush with the wall. Detached signs shall be monument signs not exceeding 8 feet in height nor 50 square feet in area. Detached signs shall only be located within landscaped areas. Only one sign per building or tenant space shall be allowed.

18.25.150 TRASH ENCLOSURES

All uses shall have a trash-enclosure constructed of the same materials as the main building, be located on a concrete pad, and built in a manner to prevent deterioration or destruction by vehicles. The enclosure shall be readily accessible to service trucks, and the opening shall not be visible from streets or any public walkway or within 30 feet of the top of bank of the Sacramento River or any backwater area.

18.25.160 OPEN SPACE

For the purpose of protecting the public enjoyment of the River, providing fishing access, and protecting riparian habitat, upon issuance of a building permit or approval of a subdivision on any parcel adjacent to the River or its backwaters, a 30-foot-wide, open-space easement shall be dedicated to the City on the water area adjacent to the bank.

Any areas of fill adjacent to the River or its associated lakes or lagoons shall be landscaped or covered with native rock. Concrete riprap is prohibited.

18.25.170 SITE PLANNING

Site planning and subdivision design shall include the provision for public and private open space, with the understanding that the River is a public asset whose limits are owned by the State Land Commission; flows are regulated by the Bureau of Reclamation; and improvement along its banks are regulated by the State Department of Fish and Game and the City of Redding. Accordingly, site planning shall include the provision for public access to the River from streets, dedication of right-of-way for a public trail system along the River, and building setbacks from the River. Consideration shall also be given to the protection of vistas and scenic corridors, the perpetuation of a cohesive trail system along the River, and unified development of properties along the River with respect to walkways, lighting, landscaping, and parking.

18.25.180 DESIGN APPROVAL REQUIRED

In any district with which the "SR" District is combined, design approval shall be secured as provided by this chapter prior to the construction of any building or structure. The design shall be considered in an endeavor to provide only that such buildings, structures, planting, paving, and other improvements shall be so designed and constructed that they will not be of unsightly or obnoxious appearance to the extent that they will hinder the orderly and harmonious development of the City, impair the desirability or residence, investment or occupation in the City, limit the opportunity to attain the optimum use and value of land and improvements, impair the desirability of living conditions in the same or adjacent areas, and/or otherwise adversely affect the general prosperity and welfare.

To this end, changes may be required in the plans of such proposed buildings, structures, planting, paving, and other improvements as it may deem to be necessary to accomplish the purpose of this section, and such plans shall not be approved until it is satisfied that such purposes will be accomplished.

18.25.190 ARCHITECTURAL COMMITTEE

- A. The City Council shall appoint an architectural committee of five members:
 1. The Architectural Committee shall have authority to approve architectural sketches within the meaning of the standards of this chapter.
 2. In case the applicant is not satisfied with the decision of the Architectural Committee, he may within ten (10) days after such action, appeal in writing to the Planning Commission. The Architectural Committee may, if it deems it advisable, refer any application for design approval to the Planning Commission for its decision.
 3. In case the applicant is not satisfied with the action of the Planning Commission, he may within ten (10) days appeal in writing to the City Council, and the City Council shall render its decision within thirty (30) days after the filing of such appeal.
- B. The Architectural Committee shall consist of the following:
 1. One member of the Planning Commission.
 2. One architect.
 3. One general contractor.
 4. One landscape architect.
 5. One member of the general public.
- C. The Planning Director shall be considered an alternate member of the Architectural Committee if one of the designated persons above is unable to attend a meeting.
- D. In the absence of appointment of an Architectural Committee or a quorum does not exist, the Planning Commission shall act as the Architectural Committee.

- E. As needed, the Architectural Committee shall meet on the third Tuesday of each month. Complete applications for Design Review must be made ten days prior to the meeting at which it is to be heard.

18.25.200 APPLICATION FOR DESIGN REVIEW

Any person proposing to construct or locate in the "SR" District any improvement subject to design review hereunder shall, with the filing of a use permit, file an application for design review with the Planning Department. The application shall be accompanied by a filing fee according to the schedule set forth by resolution of the City Council. The application shall also include required environmental documents (unless completed under a previous City action) and plans, information, and displays necessary to understand the project. The Planning Department shall refer these plans, information, and displays to the Planning Commission or Architectural Committee for consideration. After consideration of the architectural plan, the Planning Commission or Architectural Committee shall issue its determination setting forth its action on the architectural plan and, where applicable, the conditions which must be met by the applicant.

18.25.210 APPLICATION MATERIALS

Information included with the application for design review shall include the following, which represents the minimum information that should be submitted for review on applications for design review:

- . Vicinity map;
- . Site plan, drawn to scale;
- . Scale and north arrow shown;
- . Dimensions of property;
- . Location of existing and proposed buildings or structures showing dimensions from property line;
- . Location and width of drive approaches;
- . Location of off-street parking--the number of parking spaces, type of paving, direction of traffic flow, parking-stall dimensions, and areas for turning and maneuvering vehicles;

- . Location of off-street loading areas;
- . Location and design of water-oriented improvements including railing, type of buoyancy, shading, etc.;
- . Location, height, and material of existing and/or proposed fences and walls;
- . All elevations of the proposed structure as they will appear upon completion from all sides;
- . All exterior surfacing materials and their colors;
- . Location of signs and size, height, color, and illumination of all signs;
- . Landscape plan showing location of existing trees proposed to be retained on the site;
- . Location and design of landscaped areas and the varieties of plant materials to be planted therein and all other landscape features;
- . Refuse disposal site and enclosures;
- . Means of screening all vents, pipes, antennas, and machinery placed on roofs;
- . Elevation of 100-year flood plain and finished floor elevation;
- . Grading plans; and
- . Topography.

An application shall not be deemed complete until all of the above have been submitted and an environmental finding made.

18.25.220 DESIGN CRITERIA

The design of any proposed development in the "SR" District shall incorporate and be guided by the following policy statements and design guidelines:

- A. Projects should recognize the nature of a neighborhood and site, existing development patterns, materials used, landscape features, topography, distinguishing architectural characteristics, historic elements, and the expectation of those who will see and use the building.

- B. Projects should respect the River as a community asset and focal point. Projects shall give equal design status to the view of the building from the River as from the street or parking area.
- C. New construction should respect mature trees, the bluffs, the River and backwater, and other features in the landscape that are important to the character of the site and environment, especially when they constitute an important part of views from neighboring buildings or the public street. Desirable trees should be protected during construction.
- D. Landscape planning should be an integral element of the total design. Greenway and site work should provide favorable exterior elevations and views from within. Plant, shrub, and tree species should be appropriate to the climate and location and provide color, transitions, seasonal variety, and attract the eye. Emphasis should be given to energy conservation through shading and low upkeep.
- E. Parking areas should be broken into small areas, have shading by trees, or otherwise be treated to reduce the undesirable visual effects of many parked vehicles. Outdoor display or seating areas should be similarly treated and screened by low walls, hedges, or plantings.
- F. Landscape features, such as walls, paving, fences, screens, outdoor lighting, and planters, should be an integral part of the building design with emphasis on safety and enhancing views of driveways, pedestrian walkways, entry, and delivery areas. Nighttime views of the building should be considered with lighting designed for both security and architectural effects.
- G. A variety in building shapes and sizes should be used to create interest and character while still maintaining consistency in exterior color and roof lines. Surrounding building heights and sizes should be respected, if necessary, by breaking a larger building into a smaller component, increasing setbacks, and giving attention to all sides of the building.
- H. A clear and consistent design attitude should be used to avoid confusion of forms, colors, materials, and details. Buildings should carry a theme or create a transition between extreme themes. Materials should be appropriate to the intended use and the bulk of the building.

- I. Shapes, colors, materials, and other architectural treatments should be used to define, differentiate, soften, and enliven the built form. Undifferential flat rectilinear forms will not satisfy aesthetic requirements on a large scale. The use of curves and angles, backfill, and varying levels should be used to soften and add dynamism to a project. The sensitive alternation of colors, materials, and building plans can also produce interest, enhance architectural effects, create pockets of light and shadow, and provide relief from monotonous or uninterrupted expanses of wall.
- J. Roof lines should be visibly angled and of materials that harmonize with the building. Flat roofs should be avoided. Roof overhangs should be generous to provide passive solar, to complete the roof line, or to reduce apparent wall height. Consideration should be given to the views from taller buildings. Roof pitch, texture, and color should be used to compliment and enhance the scale of the building and wall materials. Roof forms of existing buildings should be respected if they have created a theme. Any distinctive patterns of ribs, joints, or standing seams should coordinate with other elements.
- K. Windows should be used to allow light and air and a view of the interior rather than to be used as a sign. Openings should be treated as part of the architectural composition and should consider exterior effects, scale harmony, and the climate. Recessed openings and overhangs can help to create contrast. Color and tinting should consider the exterior wall materials and glare reflecting onto adjoining properties.
- L. Utility doors, access panels, fire doors, and service entries should be part of the architectural composition and blend with the building or placed out of view.
- M. Signs, sign structures, and exterior graphics should be treated as an integral element of the total design. An attempt should be made for harmony and subdued appearance. Forms, materials, and colors used should be similar to the building. Signs shall be mounted flush on the wall of the building or shall be ground mounted. Pole and roof signs are considered inappropriate.
- N. Utility connections and mechanical equipment should be concealed with screens and enclosures that are integral elements of the building.

- O. If River water is used to supplement the air-conditioning system of the project, then it shall also be used to provide at least one decorative fountain or waterfall effect to be seen from the public right-of-way prior to recycling the water back to the River.
- P. Parking lot or walkway heights that are not low profile, shall be bordered by an ornamental or decorative fencing sufficient to screen the wheel area of vehicles.

18.25.230 FINDINGS AND APPROVALS

In approving the architectural design of a project, the Planning Commission shall find that the criteria listed in Section 18.25.120 and Section 18.70.050 of the City Code are in evidence and that the project complies with the Municipal Code.

If either the Planning Commission or the Architectural Committee are unable to make the findings and determinations prerequisite to the granting of design approval, it shall deny said application or may require modifications of alterations to any submitted drawing, sketch, or plan. The authority and responsibility, which is imposed upon the Planning Commission or the Architectural Committee, and the action thereon shall be final and conclusive, except in the event of an appeal or referral as provided herein.

No permit shall be issued, and no structure, building, or sign shall be constructed or used in any case until such drawings, sketches, and plans have been approved by the Architectural Committee, the Planning Commission, or the City Council, and after any period allowed for an appeal by the applicant and others. In the event of an appeal, no such permit shall be granted until the matter has been finally acted upon and final approval has been received. All signs, buildings, structures, and grounds shall be in accordance with the drawings, sketches, and plans as finally approved. Said approvals shall be on file with the Planning Department.

18.25.240 PROHIBITIONS

No building permit, license, certificate, or other approval or entitlement shall be issued or given by the City or any department or employee thereof with respect to any improvement subject to design review until the design of the improvement has been approved as provided in this chapter. No certificate of use and occupancy

or similar approval shall be issued or given for any improvement subject to design review hereunder, unless and until the representative of the Planning Department has certified that the improvement has been completed in accordance with the design approved pursuant to this chapter.

18.25.250 NUISANCE

Any improvement constructed, located, repaired, altered, or maintained contrary to the provisions hereof, after the effective date of this ordinance, is hereby declared to be unlawful and a public nuisance. If any permit is issued based on plans or other submittals by the applicant or his/her representative which are contrary to the Planning Commission or Architectural Committee approval, the applicant shall be responsible for correcting any work done under such permit in order to bring it into conformance with the approved design.

18.25.260 OTHER ORDINANCES NOT AFFECTED

Nothing in this chapter shall be construed to exempt any applicant from compliance with any requirement of any other ordinance of this City or amend any such other ordinance.

18.25.270 SEVERABILITY

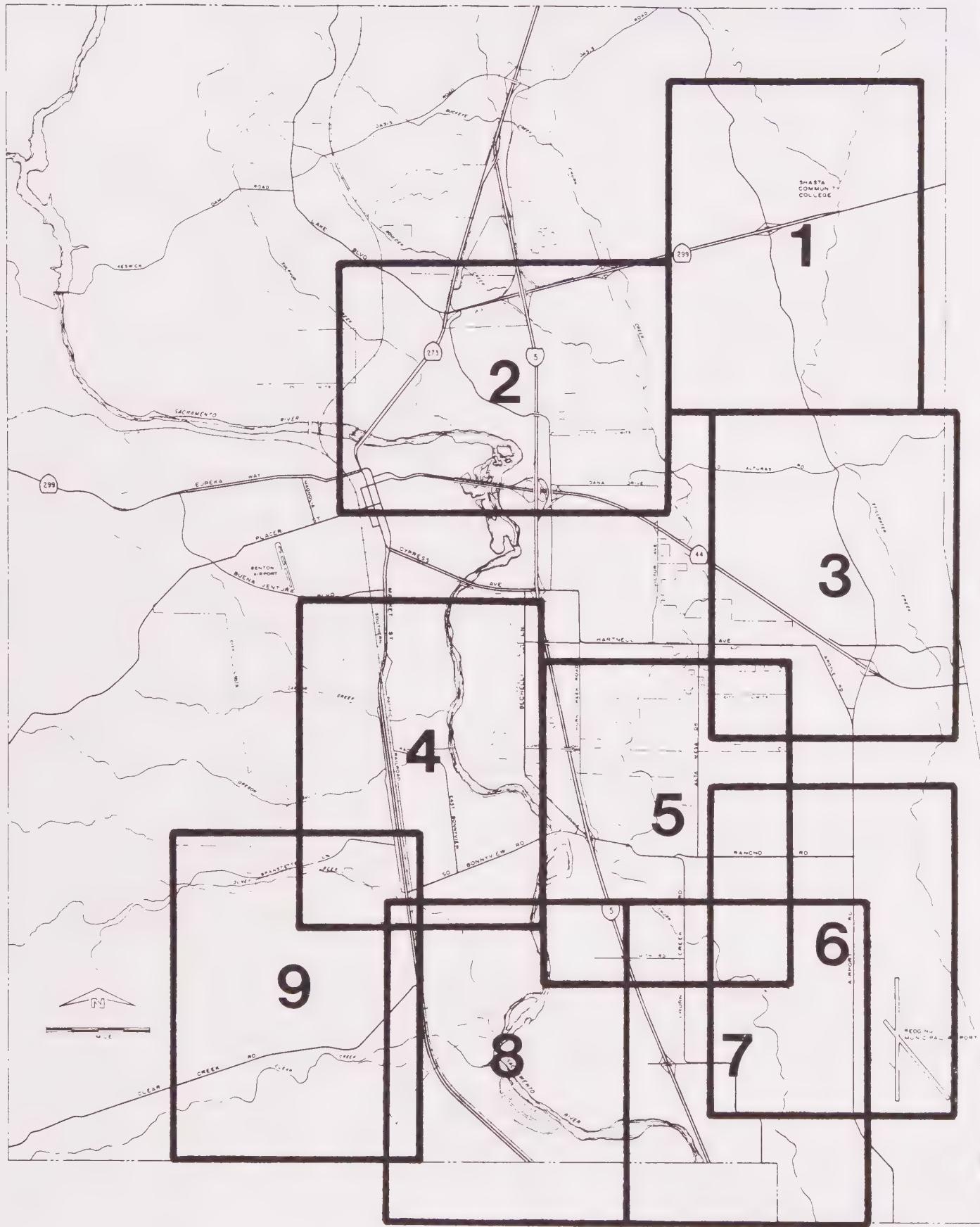
If a section, subsection, sentence, clause, phrase, or portion of this chapter is invalid, the invalidity does not affect the validity of the remaining portion of the chapter which continues in effect irrespective of the fact that a section, subsection, sentence, clause, phrase, or portion is declared invalid.

18.25.280 REVIEW BY OTHER AGENCIES

Whenever any proposed use or property has been approved and another approving agency has imposed conditions which must be reflected by a modification in plans and specifications, said plans and specifications must be resubmitted to the Planning Department for approval.

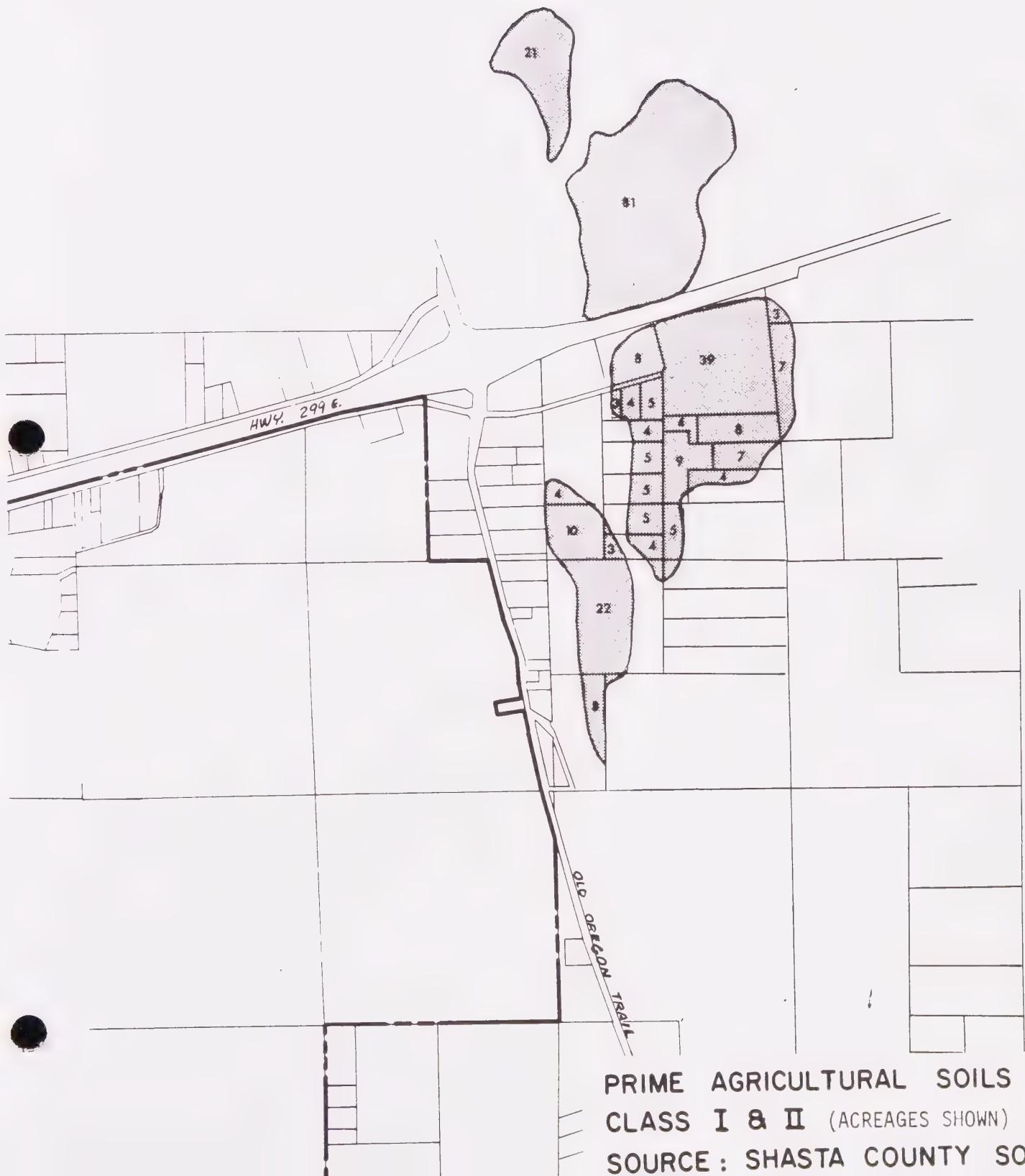
MAP EXHIBITS

PRIME AGRICULTURAL SOILS

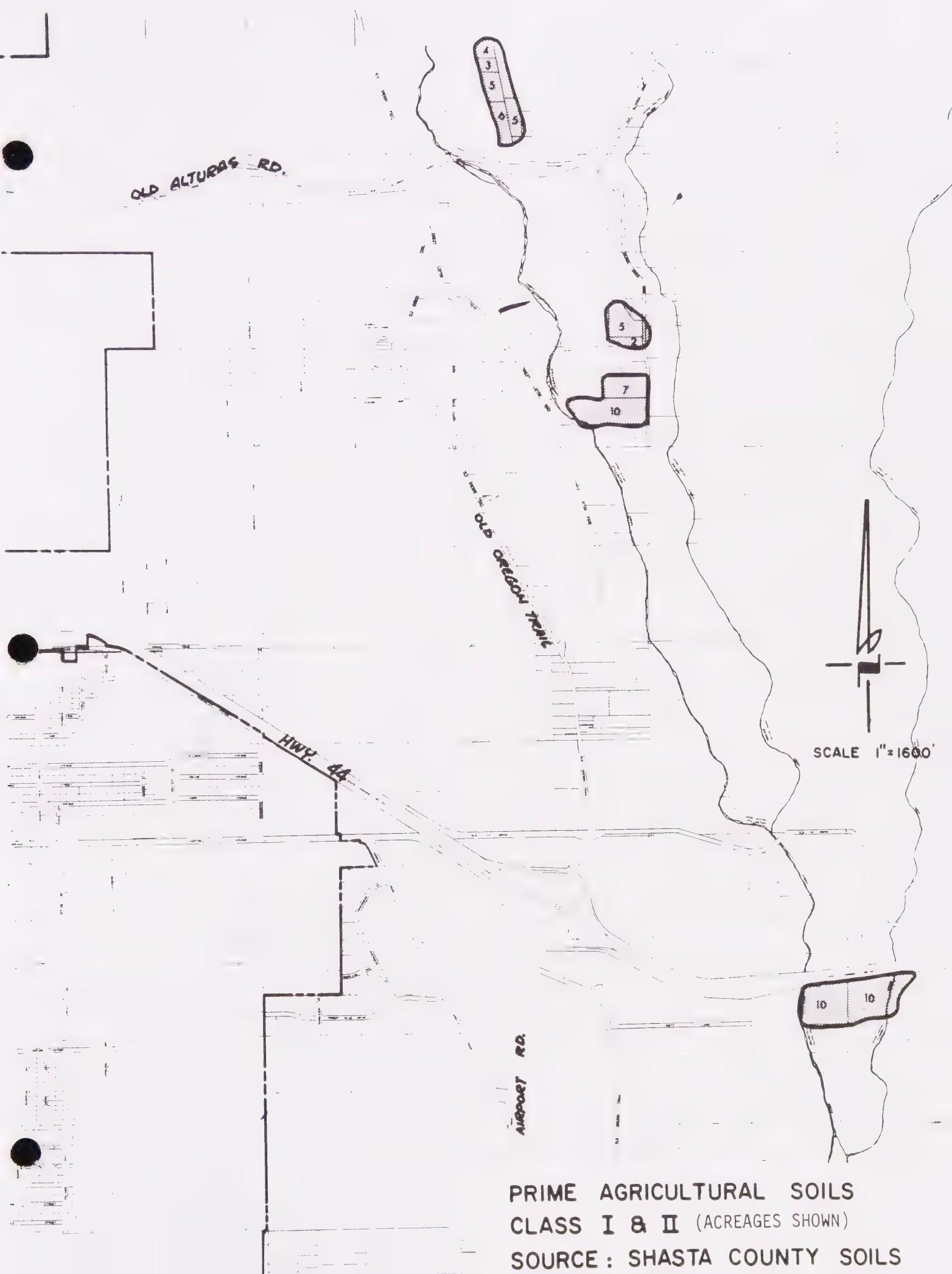


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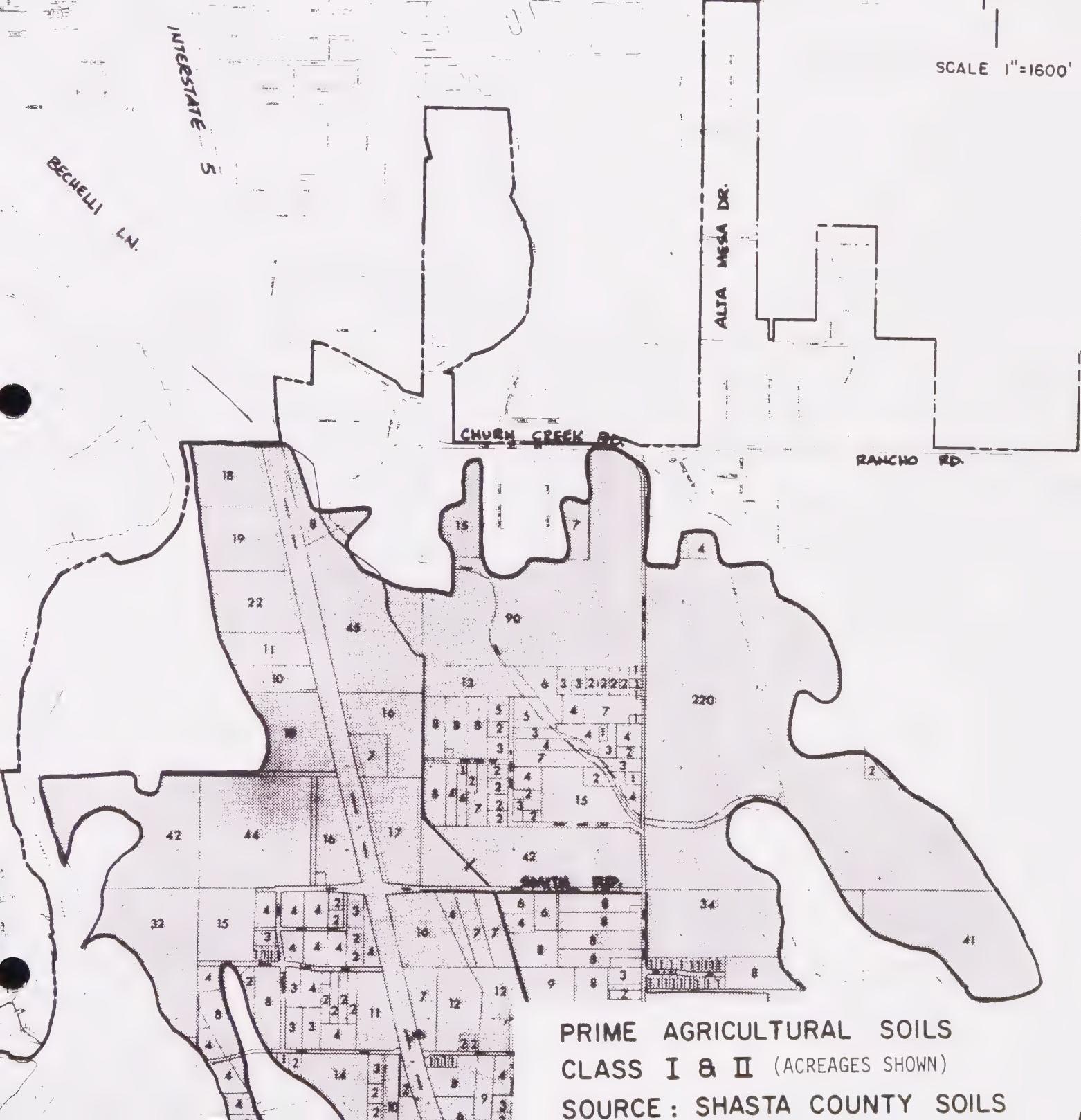




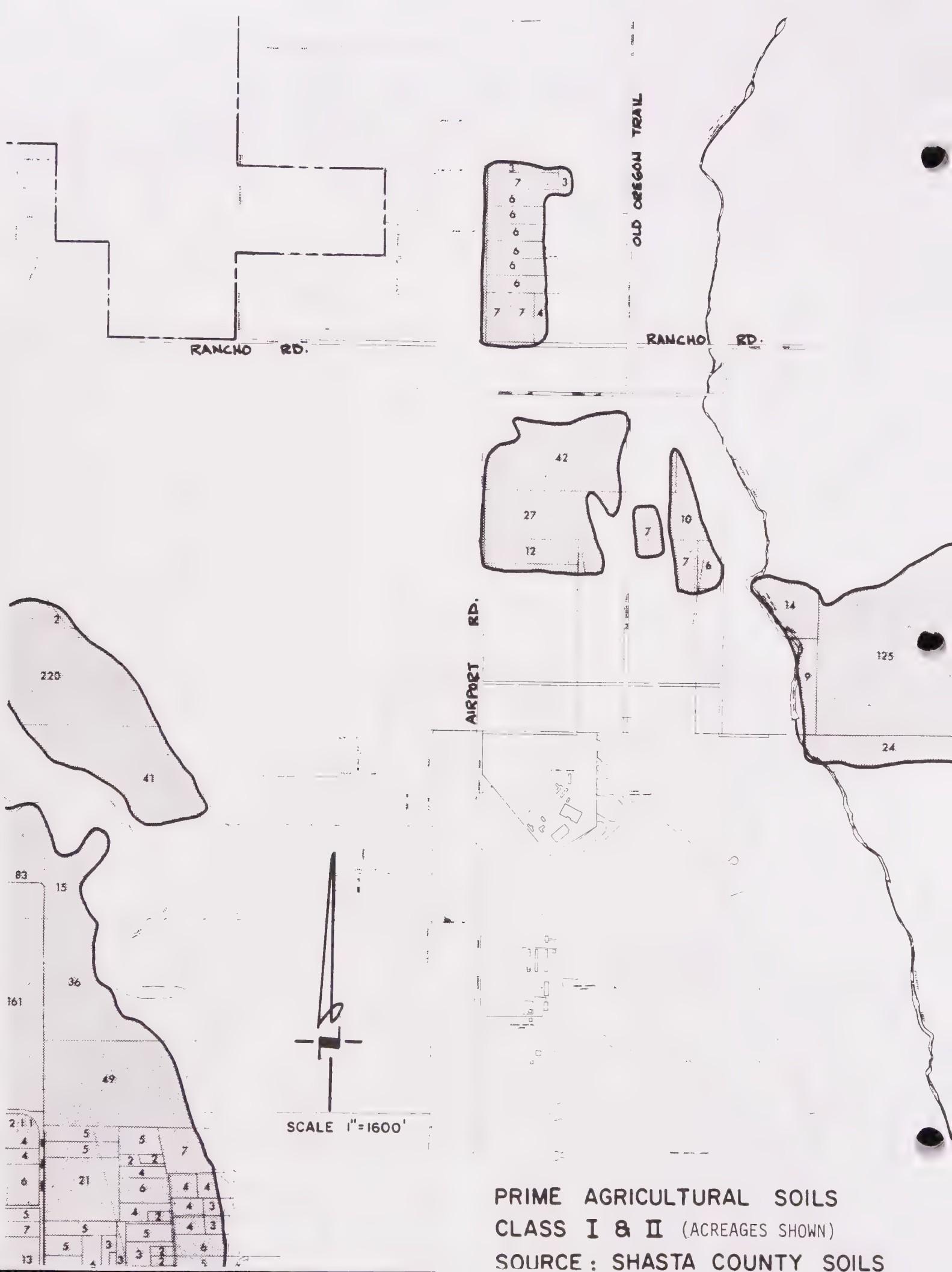


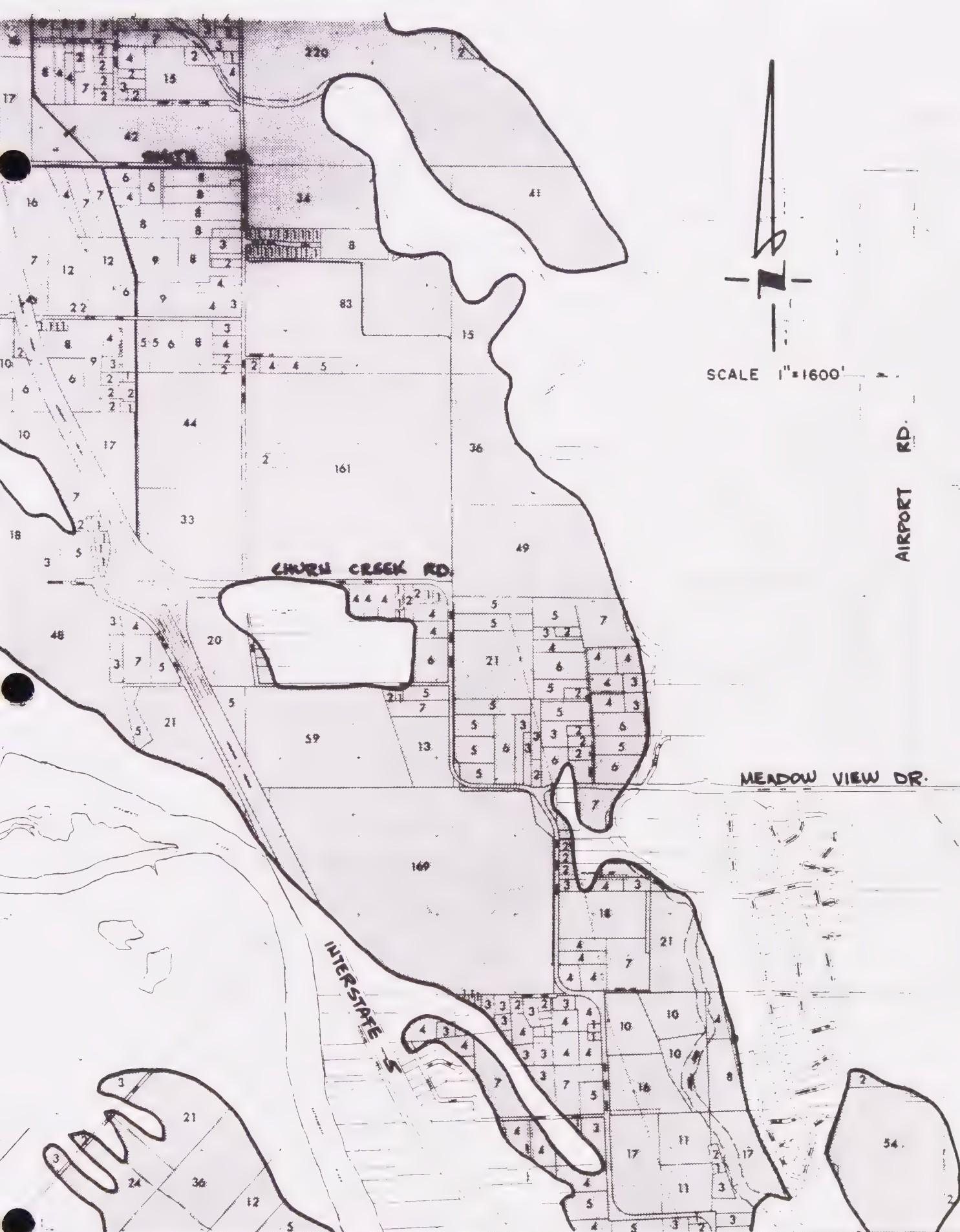
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PRIME AGRICULTURAL SOILS
CLASS I & II (ACREAGES SHOWN)
SOURCE: SHASTA COUNTY SOILS

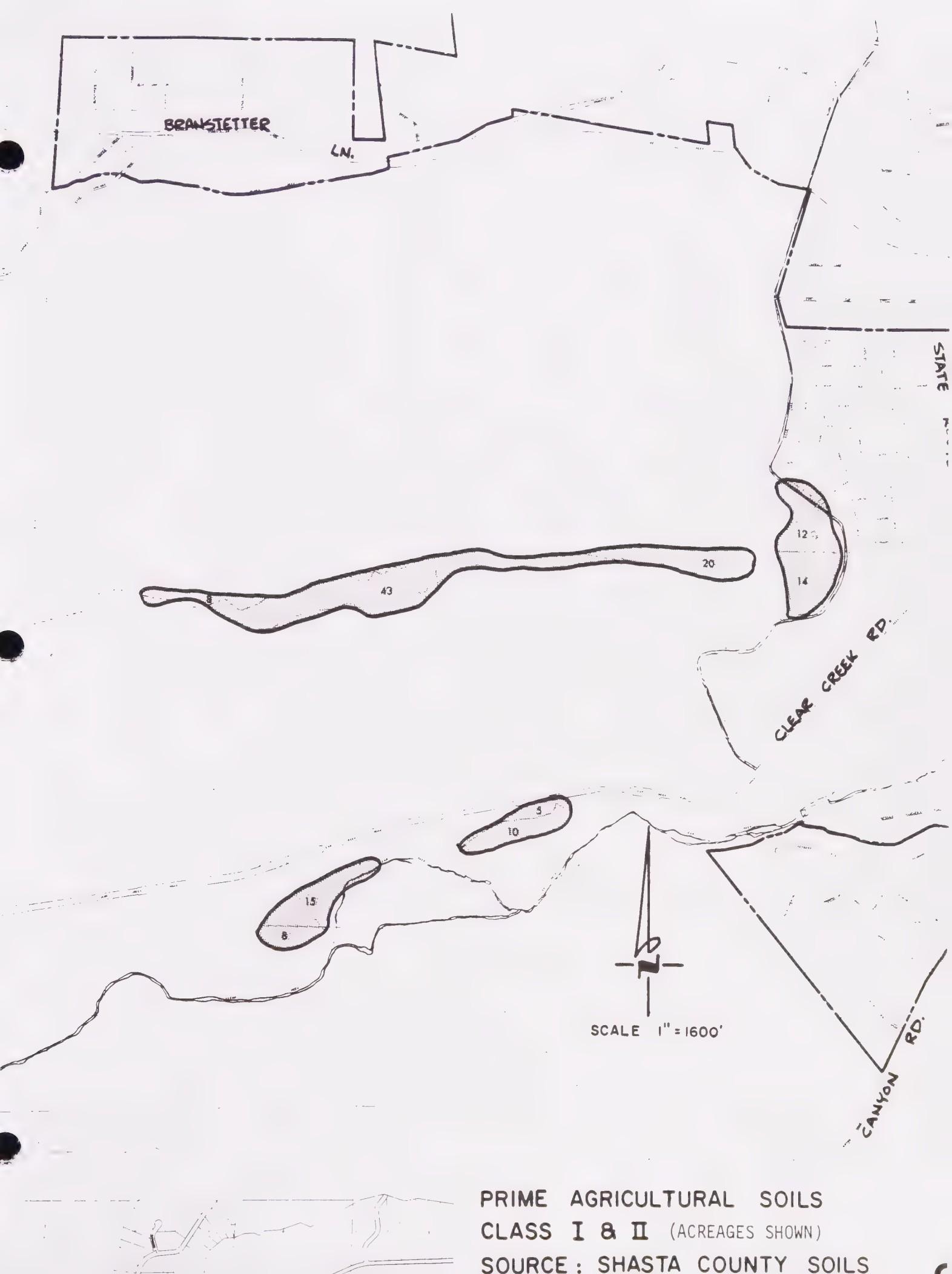


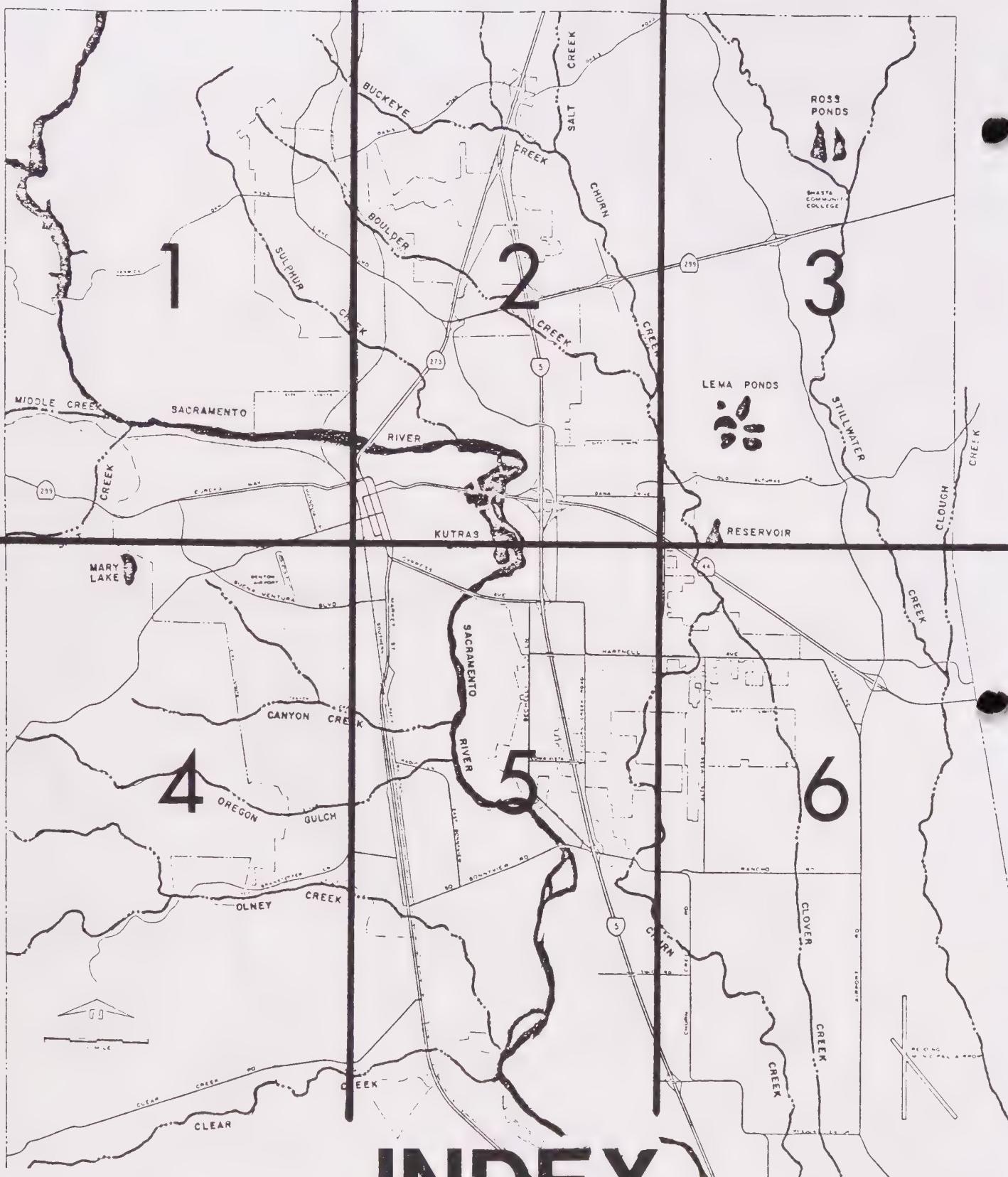


**PRIME AGRICULTURAL SOILS
CLASS I & II (ACREAGES SHOWN)
SOURCE: SHASTA COUNTY SOILS**



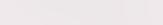
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CLASS I & II (ACREAGES SHOWN)
SOURCE: SHASTA COUNTY SOILS





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LEGEND

-  RIPARIAN
-  OAK WOODLAND
-  CHAPARREL
-  GRASSLAND
-  OAK GRASS

WILDLIFE HABITATS
OF THE
REDDING PLANNED
AREA









